The Builder.

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Cottage Garden Shows.

THE body and the spirits are alike improved by the cultivation of the garden. It offers an enjoyment for which no one is too high or too low. More grows in the cottar's plot than flowers: the cultivation of pansies may tend to his heart's ease: the bed of thyme may speed a dull hour; and kind thoughts spring up while watering the clump of forget-me-nots. Everywhere the heart of man blesses flowers: the child seeks them in the hedges: the old man finds, in their culture and study, soothing recreation and delight: Pagan and Christian have used them in their rites: flowers deck the bride, and are strewn on the grave. In every country they smile around us: to every grade they offer enjoyment: they give additional beauty to the new palace: they lovingly shroud the decaying ruin. Babylon had its hanging-gardens; Greece its roses and lilies,—

"*Lilia mista Rosis;*"

and Rome its box-trees cut into the figures of animals, ships, and letters; to say nothing of its violets and crocuses. Our first parents, indeed, came into the world in a garden, and Milton makes Eve say, as amongst her griefs,—

> ——"O Flowers,
> My early visitation and my last
> At even, which I had bred up with tender hand
> From the first opening bud, and gave ye names,
> Who now shall rear ye to the sun, or rank
> Your tribes, and water from the ambrosial fount?"

The ancients had a different idea of horticultural beauty from ours, if we may judge from a passage in Plutarch, quoted by Dr. William Smith, where he speaks of the practice of setting off the beauties of roses and violets by planting them side by side with leeks and onions, a passage which has been thought to give a proof, that flowers were cultivated more to be used for garlands than to beautify the garden.

Be this as it may, onions and leeks concern us just now as much as roses and violets,—greatly as we prefer the latter on all occasions,—for our purpose is to speak of a Cottage Garden association, the inauguration of which on Wednesday in last week, has led us to make the preceding observations. It was the East Grinstead and Lingfield Cottage Garden society, and the meeting was held to distribute prizes in Felbridge Park, the seat of Mr. Gatty, a short distance from the town. The place was well adapted to the purpose, an expansive sward, with water and noble trees. Here, too, is a monumental column, bearing an altar (very ugly, by the way, in outline), erected from the design of the late Sir John Soane, when young, in memory of the last of the Evelyns, a name well known to the arboriculturist, and inscribed, *inter alia*, with the motto, "Manners makyth man." A large tent, with "Reward lightens Labour," in flowers, and (elsewhere) "Nothing without Labour," also petallically set forth, contained the various specimens. The society owes its origin, we should say, to Mr. J. Henry Rogers, and it is not the first good work for East Grinstead and its neighbourhood in which Mr. Rogers has mainly assisted. Similar societies have of late years been established in great numbers in Sussex, and, indeed, in most parts of England, and have been productive of much good. He had no experience of them himself, but thinking it rather a disgrace that a town of so much (relative) importance as East Grinstead should be without one, set to work in the early part of this year to collect information on the subject, and then proposed the promotion of a society for the district. Mr. Lennox, of the same place, co-operated with him as joint honorary secretary, and the result was most satisfactory. The premiums offered included:—For the gardens or allotments which up to the month of September shall have been kept the best stocked, in the neatest order, and the freest from weeds; first prize, 1*l.* 10s.; second prize, 1*l.*; third prize, 15s.; fourth prize, 10s.; fifth prize, 7s. 6d.; and it was set forth that, in awarding these prizes, the judges, who from time to time inspected the gardens, would take into consideration, not merely the crops, but the size and general state of the premises, including fences, walks, edgings, flower borders, seeds, tools, dung mixen, and piggery. Other prizes were offered for potatoes (some capital specimens were shown), onions, carrots, turnips, apples, pears, and so on. In respect of flowers, no fine words were used: there was no demand for pollopostemonopetalæ, or the iztactepotzacuxochitlicohueyo! The prizes offered were, "for the best nosegay, 5s.; for the second-best, 3s. 6d.; for the best plant grown in a pot, 4s.; for the second-best, 3s. 6d.," and so forth. Many societies combine with a cottage show a general show, and award prizes to amateurs and professional gardeners; but this seems a mistake, diverting the attention, and, worse than all, the funds, from those who are especially intended to be benefited, and it was not pursued on this occasion. All the flowering plants shown at Felbridge Park were contributed by the gardeners of gentlemen in the neighbourhood, by far the greater portion being from the gardens of a wealthy Chinese, long resident there, and who preserves that love of flowers for which the Celestials are said to be distinguished,—Mr. Hochee. The gardens of the cottagers in this part of the country, although often admirable, are by no means equal to what they are in many other rural districts of England, though still immeasurably superior to those in most foreign countries or our own Highlands. All must be struck on returning home from a foreign trip with the neatness and freshness of our cottage gardens. After the prizes had been delivered, the specimens, still the property of the exhibitors, were sold by Dutch auction for their advantage.

Cottage garden societies might be made the means of spreading a knowledge of the best modes of cultivation to all parts of the land. This has not been sufficiently attended to yet. At East Grinstead they have endeavoured to make a beginning by presenting to each competitor a copy of Sir Joseph Paxton's capital little work on cottage gardening, and by inducing some of the gentlemen's gardeners to go round from time to time and give their poor neighbours a little practical instruction. Much good might be done if this were generally imitated. Some plan might be devised for supplying, at moderate price, seeds and plants of the most approved kinds. It requires no more labour to grow the best than the worst sorts; but, as a general rule, cottagers, and often those far above them in the social scale, go on perpetuating the kinds of apples, pears, gooseberries, or currants which their fathers cultivated before them, instead of the improved, and equally hardy, and often far more productive varieties which have since been introduced.

An endeavour was made to direct cottagers to the advantages to be derived from keeping bees, and a number of prizes were offered; but not one person competed,—a proof of the unfavourable season. There has been, we fancy, no honey-making this year in the south of England. In the whole, fifty-five persons sent objects for competition, varying in number from one to twenty-three kinds each, forming a total of 316 lots. It is rather a curious illustration of the effect of trying for too much, that the man who sent twenty-three different articles did not get a single prize, and we have seen this occur elsewhere. The number of contributions by those who did obtain prizes was much less numerous.

Rather more than half the exhibitors obtained premiums, and a number of additional prizes were subsequently awarded.* Mr. Rogers, writing on the subject, says,—"I am not a cricketer, and therefore, perhaps, somewhat prejudiced; but I have always found that the advocates for that amusement dwell a great deal on its alleged beneficial influence in bringing the high and the low together; but certainly much more might be said on that head in favour of cottage-garden societies, since the earth yields its produce without favour to the high or the low, the rich or the poor. Cricket may develope the muscles, but the spade is surely capable of producing this effect as well as the bat; and, whatever skill a man may have attained as a cricketer, he is incapable of applying it to any useful purpose. At best it is a manly amusement, and but too often the cricket-field not only takes men from their work, but leads to public-house visitings, which do not cease after the cricket season is over. I have often been struck with the dull, vacant gaze of the spectators at cricket matches, lolling about with pipes in their mouths, or seated in the booths drinking beer. The appearance of visitors at a cottage-garden show is very different."

It is interesting to notice the extent to which gardening has grown. In 1403 the chief products of our gardens were cabbages, onions, and garlic. Apple, pear, cherry, and quince trees seem to have been the only fruit-trees in England at that time. The plum-tree was first introduced into this country in 1580, being brought from Asia. The cockspur hawthorn was first cultivated here in 1692. The maple-leaved hawthorn was introduced into England from America in the year 1738. A beautiful variety of the alder was first cultivated in England in the year 1780, being brought from Switzerland, Siberia, and other cold countries. The cedar was first cultivated here in 1664, and the common white larch, which now covers with such excellent effect so many wild parts of the kingdom, but is becoming diseased, was accidentally taken to Scotland in 1737. Mr. Menzies, of Culdare, having procured four of these plants from Siberia, gave two to the Duke of Atholl, which are still in full vigour at Dunkeld, and may be called the parents of all the larch trees in the kingdom.

The mulberry-tree was introduced in the reign of James I. The lime is said to have been brought into England by the Romans, but it does not appear to have been planted in Scotland before the reign of Charles II. The general cultivation of carrots, it is said, originated with certain Flemings who fled hither in the reign of Queen Elizabeth, and settled at Sandwich, in Kent. Peas were a rarity in that same reign. They were brought from Holland. Fuller speaks of them as "fit dainties for ladies: they came so far and cost so dear." The opinions which prevail in respect of some flowers are curious. The snap-dragon, for example, is thought by the less advanced people in some countries to exercise supernatural influence—to have the power of destroying charms and baffling maledictions. Bachelors' buttons were viewed as having a magical effect on the fortunes of lovers. How oddly, too, have some plants reached us. Saffron, which was at one time cultivated to such an extent in Essex as to give its name to a town, came to us from abroad at the risk of a life. Hakluyt was told at Saffron Walden that a pilgrim brought from the Levant to England, in the reign of Edward III., the first root of saffron, which he had found means to

* For the gardens and allotments which up to the month of September shall have been kept the best stocked, in the neatest order, and freest from weeds—1st. 1*l.* 10s., James Sargeant, Lingfield; 2nd, 1*l.*, Richard Bilcliffe, Lingfield; 3rd, 15s., George Brooker, East Grinstead; 4th, 10s., William Penfold, Lingfield; 5th, 7s. 6d., John Steer, East Grinstead; 6th, 7s. 6d., James Borer, Lingfield; 7th, James Huggett, East Grinstead 8th, Felix Borer, Lingfield.

conceal in his staff, made hollow for that purpose. "If he had been taken, by the law of the country from whence it came, he had died for the fact." Saffron-hill, Holborn, part of Ely Gardens, had its name from the crops it bore.

Fashion alone produces constant changes in our floriculture. The holly-hock was nearly banished by the dahlia, and is found, even now, more's the pity, oftener in the cottager's garden than in the dressed ground of the squire. It is to be hoped the cottar will not give it up, and that the squire will take it back; indeed there is evidence that he is doing so. What can be finer than a varied group of them, pillars of brilliant colours, against an old stone wall, or clump of dark shrubs? The most gorgeous bit of colour we can remember to have seen was a front garden thus fitted up, near Wilton, in Wiltshire. There are some capital single specimens round about the spot of which we have been speaking. The dahlia, we may mention, which comes from Mexico and is named after Dahl, a Swede, was brought into fashion by Lady Holland, at Holland House, Kensington, in 1804. The English are peculiarly favoured in being able to cultivate, thanks to climate and science, nearly every description of plant. The wonderful orchid from Mexico, the moss from Iceland, the creeper from Indian jungle, can alike be made to flourish in this country. However, what we have chiefly in view just now are the flowers—

"That dwell beside our paths and homes,"

the pleasures they afford, and the means of extending these enjoyments. In the vicinity of populous towns, advantages would arise from proprietors letting small portions of land to their less fortunate neighbours for garden purposes, in which the wives and children might assist. We can speak positively as to the benefits of such a system, and of how many kindly feelings it is the producer. We would have the enjoyments of the garden made as general as possible. We do not ask for an Isola Bella, where a barren rock, manured with gold, is made to bloom with bays and orange trees, or *Louis Quatorzième* expanses with fountains and statues, and delusive perspectives, the glories of Blenheim and Stowe, or even gardens after the "grand manner" of Batty Langley (much abused of men). We plead but for the simplest enclosure, and the homeliest flowers. How much is the family tie strengthened by the daisy necklace strung in infancy, and the after-life brightened with the recollection of chaplets of wild flowers woven for saucy faces in early life. It has been said too, and wisely, that "if you are poor, yet modestly aspiring, keep a vase of flowers on your table, and they will help to maintain your dignity and secure for you consideration and delicacy of behaviour." For the same reason, it is not surprising to learn what they who have been in the habit of awarding prizes in various parishes say, and it is this,—that in almost every instance where they have found a good garden, they have observed that the woman, the children, and the house, are also neat, orderly, and well kept. We need not seek a better piece of evidence with which to close our notice of the East Grinstead Cottage Garden Society, or a better reason for advocating the establishment of a similar association in every village where there is not one already.

EVIDENCE TOUCHING THE ARCHITECTURAL MUSEUM.

A COMMITTEE of the House of Commons, it will be remembered, were appointed during the last session to inquire and report concerning the "South Kensington Museum." The following is that part of the evidence given by Mr. Henry Cole, C.B., which refers to the Architectural Museum:—

Chairman.—Will you state the circumstances connected with the collection of architectural casts?—The collection of architectural casts was originated by the School of Design: the South Kensington Museum have added but very little to them for want of room, chiefly, and partly for want of funds; but a large collection of architectural casts is deposited in the South Kensington Museum which is the property of the Architectural Museum, and which was formerly deposited in hay-lofts in Cannon-row.

Will you state under what agreement they were deposited at South Kensington?—They requested that space should be assigned them in the South Kensington Museum, and permission was given to them to have them there for three years, which will expire next year; and, owing to the state of the building and owing to the want of room, notice has been given to the committee that the space can no longer be available for them.

What was the state of the building which caused that notice to be given?—The space allotted to the Architectural Museum Committee was in the galleries of the iron building, and our engineer found that the floors began to swag, and we thought that the building was in some jeopardy, so that we were obliged to take all the heavy articles out of the gallery and put them down stairs.

That was one reason: was there any other?—Another reason for giving them notice was, that the casts which the country had purchased as examples for the Houses of Parliament had been handed over to the Department: they are, in fact, originals of a great many of the casts of the Architectural Museum; so that it was hardly justifiable to find space at the public cost for the originals and for duplicates.

Are those casts taken for the Houses of Parliament valuable?—I believe that they cost about 7,000*l.*

You are not able to find room for them at present?—At present we cannot receive them.

Can you state any advantage that has resulted from this architectural collection?—Partly owing to this architectural collection, and partly owing to the disposition of the country to build churches at the present time, and partly owing to our Schools of Design, Gothic architecture is very much better than it was thirty years ago.

Mr. Hankey.—What is the Architectural Museum?—It is a voluntary association of gentlemen and workmen, who subscribe from 1*l.* down to 5*s.* a-year, who elect a committee, the president of which is Mr. Alexander Beresford Hope, and the treasurer Mr. Gilbert Scott. It is a sort of architectural society for the express purpose particularly of improving carvers in stone and wood.

Is it not an institution intended as a private speculation?—No.

Mr. Adderley.—Is that Museum much attended by visitors?—As a popular collection, I think that it is the least popular part of the South Kensington Museum: as to its use to workmen, it is used by them and by the students.

Mr. Hankey.—Is this Museum in a completely separate building from the other buildings?—No; it is in the same building, with a large portion of the ornamental art collection.

You spoke of it as being in a critical state?—I referred to the galleries.

Mr. G. G. Scott, A.R.A., gave the following evidence:—

Chairman.—When was the Architectural Museum established?—It was originated at the close of 1851, and it was actually established in March, 1852.

What were its objects?—It had two objects: the main object was to facilitate the studies of art-workmen in all the arts subsidiary to and connected with architecture: the other object was to supply a deficiency which up to that time existed in all our public collections, that they did not attend to Mediæval art except in a trifling degree.

What were the circumstances which led to its formation?—It was mainly owing to the want which had been very long felt for our art-workmen: the arts subsidiary to architecture had much sunk of late years, and art-workmen, being usually men of rather the humbler orders, had no means whatever of following up their studies. Supposing the objects they should study from to have existed in England, they had not the means of travelling to ancient buildings in England; and if those objects were abroad still less had they the means of studying them: it was only therefore by bringing the subjects of study within their reach that we could in any degree hope to improve their taste; but the exact circumstances originating the Museum were these: Mr. Bruce Allen wrote several letters on that subject to the *Builder* in 1851, which had been suggested to him by the Great Exhibition:* just about the same time, I happened to write a letter to the *Builder* on a different subject, which was this. The only great collection of Mediæval art which had been made up to that time in England, connected with architecture, was the late Mr. Cottingham's, and it was that year offered to the Government for sale. I wrote to the *Builder* suggesting the importance of the subject being pressed upon the Government. The Government, however, refused to entertain it. That brought me in contact with Mr. Bruce Allen, and we invited a number of architects to meet together with the view of doing for ourselves what the Government had partially refused and partially neglected to do for us, and from that originated the formation of the Museum. Those architects formed themselves into a committee and founded the Museum.

Is it limited to one style of architectural art?—No; one of our leading objects being Mediæval, that naturally takes the precedence; but, our object being educational also, we have intended it to become a general museum, and it contains a very great number of specimens in the Classic and Renaissance styles.

Sir John Shelley.—You stated that "the Government partially refused, and partially neglected:" will you explain that?—If I said "refused," it would look as if the proposition had been placed before them in a specific form, and it had been deliberately refused. They had not done that: it was rather that the subject had not been attended to: as regards Cottingham's Museum, however, they had declined what had been proposed to them.

Chairman.—What means have you taken to render your museum instructive to art workmen?—Many different means: we have instituted lectures in connection with the museum: there is a series of lectures every year, perhaps half a dozen lectures, intended more or less to help the studies of workmen. In addition to that, we offer every year prizes for the best works of architectural art of different kinds; but the great thing of all is, that, as architects are really the employers of those men, each of us insists upon the men we employ studying at the Museum, and we take pains to instruct them.

What were the circumstances which brought the Architectural Museum into contact with the Department of Science and Art?—There were two or three: a deputation from our committee called at an early period of our existence (I cannot remember the year: I think in 1854), on Mr. Cole and Mr. Redgrave; we were kindly received by them, and they came and attended at a meeting of our committee, and gave us useful advice, and altogether we entered on friendly relations with them. In 1855 they agreed to make a subscription to us (not saying that it should be annual), for that year, in consideration of the admission of their students to all the advantages of our Museum; the lectures, the use of our Museum, and other advantages.

How came you to occupy a portion of the space of the South Kensington Museum?—I should have mentioned that at that time our Museum was in a very rough place in Cannon-row: we had extensive premises in a sort of loft, in which was an extraordinary collection of casts, &c., procured either by gift, or loan, or purchase. We had raised funds by applying in all quarters, and in the course of a year or two we had formed a wonderful collection of casts and other objects, and had completely outgrown the room we had. When we applied to Mr. Cole and Mr. Redgrave after the close of that year for which they subscribed 100*l.*, to ask whether they would continue that as an annual subscription, we received a reply to this effect,—that the circumstances under which they were placed were about to alter; that they were about to remove their museum and schools of art from Marlborough House to the South Kensington Museum, and therefore their students would be more removed from the neighbourhood of our museum, and would be less able to make use of it: for those, and other reasons, they thought they should not continue that subscription; but they suggested to us, that if, instead of applying for a subscription, we would shape our application in another way, and apply for space for our collection in the new museum, though they could not answer for the reply we might receive, probably it might be favourably entertained. We therefore thoroughly considered the subject at our committee: we made that application, which, after somewhat lengthy negociations, ended in their agreeing to admit us as tenants of a certain portion of their galleries, we retaining our power over the collection as before.

You were admitted, accordingly to a portion of the iron building?—Yes.

Has your occupation been of advantage to you?—In most respects it has: the situation is not quite so convenient as it was in Westminster for the workmen, but that is an inconvenience which must necessarily occur: you cannot get space for these things in London; but in every other respect it has very much served the object we had in view.

In what way?—It has reduced our expenses: we were very poor; and it has relieved us, perhaps, to the extent of 150*l.* a-year; also we have the collection placed in a much better building now than we had then: the specimens are seen better, and it is generally an object to have such collections in a public building.

Has your museum been successful in effecting your objects?—Most eminently successful in effecting our objects. In the first place, we have collected together an extraordinary number of specimens: I do not say that they are all good, because we have purchased, and had given to us, entire collections, where we have had good and bad together; but, putting aside the indifferent ones, and viewing it only in reference to the thoroughly good specimens, it is a most wonderful collection, such as has never been made in this or any other country before, nor anything approaching to it.

Have the arts connected with architecture been benefited by it?—In a most important degree: the taste of carvers has improved wonderfully: I have letters from several master carvers which state in the strongest terms that the skill of the workmen has improved in the most remarkable degree, and I have found myself, in all my own works, there is no comparison between the work executed before and after the formation of this museum.

You think that you can trace that distinctly to this museum?—Distinctly; because the men who have executed that work have studied in this museum.

You think that their taste has improved?—Very much indeed.

Is it an attractive collection to the public?—Only partially so: our object has never been to make it an attractive collection to the public: our intention was to satisfy a want which we were every day feeling, the want of proper education of the workmen who have to carry out the ornamental part of our works: therefore it is rather a practical than an attractive museum. I do not suppose that the public at large, after going through the picture galleries, and the other more attractive objects of art, when they come to our Museum feel particularly gratified; but that part of the public who have given any attention to architecture, or who feel any interest in it, are delighted with it.

Have you and the Department got into any difficulties as to co-operation?—We have not, until lately, got into any difficulty of a serious kind: we have gone on in the main very smoothly till the last few months.

What has happened now?—The iron building has been found to be giving way. We found that we had unwittingly become tenants of a building incapable of bearing the weight which we had brought into it; and at the beginning of this year we received a letter from the Department of Science and Art, saying that Captain Fowke had examined the floors of the building, and had found them to be very insufficient for their weight, and requesting us to allow all the heavier parts of our collection to be removed into the lower part of the building. We, of course, acceded to that within certain limits: at the same time we objected to its being carried to such an extent as to ruin the arrangement of our museum altogether, and mix up objects of different styles; but within such limits as that we thoroughly acceded to their request. We followed up that consent by a suggestion, which was the result of a careful examination of the building by a large number of our committee consisting of architects: the suggestion was, that it might very easily be temporarily strengthened and supported, so as to be quite capable of bearing the weight which we wished to be put upon it, till some more permanent measure for security should be taken, or some new building should be erected; and we begged that such measures should be taken rather than that our collection should be disturbed.

What happened then?—They declined to take any temporary measures whatever, and gave us notice to quit.

Sir John Shelley.—Would those alterations have entailed any considerable expense?—Perhaps several hundred pounds.

Chairman.—Do you complain of the non-observance of any of the conditions on which you occupy your space?—No: we were a little interfered with at one time, a

* For years before this we had urged continuously the desirability of establishing an Architectural Museum. The conductor of the *Builder*, in 1846, in conjunction with the late Marquis of Northampton, as one of the trustees of the British Museum, the body at that time looked to for assistance in it, had schemed out such a museum as has since been striven for and remains still to be formed.

portion of our space being given to the Patent Commissioners; but that is not a thing we wish to complain of.

Have you made any application for pecuniary aid?—We made an application for additional pecuniary aid two years ago.

To whom?—To the Department of Science and Art.

What was the result?—They declined to aid us pecuniarily in a direct manner, but they offered that if we would make over all the collection and the whole management of it on loan to the Department, they would pay the salary of our curator; which offer we declined, because we considered that we should be giving up a power which we believed we exercised with a considerable advantage as to our objects, and that the advantage offered us in return was exceedingly trifling.

Have you anything to observe as to the reasons which were given when you were asked to quit?—The primary reason given us was, that the building is giving way, and that they are not disposed to strengthen it, nor are they disposed, in applying for funds for a new building, to recommend that space should be allowed for our Museum. They say, as a reason for not providing room for it in a future building,—'Inasmuch as this collection is almost entirely limited to Gothic specimens, and contains many inferior duplicates of casts now in the possession of the Department, as well as a number of other specimens which my Lords do not consider worth exhibiting at the public expense.' In the first place I will make a few remarks on all of those; first on the primary one, that they do not intend, in any future buildings, to provide room for this Museum. Now, architecture, I consider, and I think it is generally considered, to be the central art of all arts, and to neglect it, in such a museum, would be simply suicidal: it would be patronising all the branches and neglecting the main trunk. But the Department do not intend to do that: they mention afterwards that they may possibly found a museum, illustrating the arts of all countries, but with reference to this museum, they say that they will not provide room for it. This museum contains in embryo the very things which a national museum of architecture ought to contain; and therefore, to say that they could not provide room for it in any future building is a mistake; because, however incomplete the collection may be, and however inferior some of the specimens in it may be, it contains objects which ought to be in any museum of architecture, and therefore it should not be excluded from any future collection, but on the contrary, any future collection should contain something more than this does, of the same kind. They say that the collection is limited to Gothic specimens: first, I demur to the correctness of that. One of our leading objects in founding it was, that the subject of Gothic architecture had been neglected, and therefore our first effort was to supply that want, but we have also a very large number of other specimens, and to reject specimens because they are Gothic is as much as to say that a future collection should not contain Gothic specimens: that is not a reason for rejecting Gothic specimens, but for adding specimens in all other styles. It is an objection wholly of a negative kind, that it does not contain enough of other styles, which we freely admit, but it is not correct to say that it contains none of them. We have a great number of specimens in other styles, and the mutual arrangement which we have gone upon has been an admirable one, for they possessed before we joined them a considerable collection of Classic and Renaissance specimens, and a small collection of Gothic, and a small collection in the other styles, and the arrangement which we have gone upon has been this, to draft off into their collections our Classic and Renaissance specimens, and to draft into ours their Gothic specimens; so that we have mutually enriched each other, and nothing could be better and more conducive to the formation of a thoroughly good architectural collection at a future time. The next objection is, that our museum contains many inferior duplicates of casts now in the possession of the Department. No doubt it does: every collection that is made gets good and bad together, because we get entire collections as presents and loans: those collections contain inferior things with the superior ones. Whatever museum is made, it will become necessary from time to time to expurgate it of the inferior specimens: that is therefore a thoroughly good reason for expurgation, but a thoroughly bad one for excluding the good things, because there are some bad ones among them. The third objection is, that 'it contains a number of other specimens which my Lords do not consider worth exhibiting at the public expense.' That I cannot say anything about: excepting from it the bad specimens (and I can say that the remainder are good), I think that the collection being for the improvement of the arts of this country, it ought to be, I will not say, exhibited, but made available for students, and placed in a position suited for study at the public expense. These are my replies to those reasons.

Do you consider that such a thing is better managed by a public department, or by a private society?—I think that there are advantages and disadvantages in both. A private society has a very great advantage, and, at the same time, a very great disadvantage: the advantage of the private society is this, no body of private individuals would club together to give themselves trouble and expense, and all kinds of annoyance and difficulty, without having a very strong practical object in view, which impels them to take all that trouble. That body of men who are impelled to join and form such a society know what and feel what they want: every day they are experiencing the want of what they are aiming at; and they also know where to obtain the objects which would satisfy that want; and therefore they have a very great advantage, in carrying out such an object, over a public department, which cannot know from any practical experience what is required: all they get is indirect knowledge of it, but they have not that knowledge from their own individual feeling and experience. The very fact, therefore, that people will form a society for these purposes, shows that they feel the want, and that they know the direction in which the want can be supplied. On the other hand, a private society has the fearful disadvantage of having no funds. The advantages of a public department are, that they have funds: they are acting in a public capacity, and they feel that they are acting for the public. The disadvantages of a public department are, that they do not know so well what are the requirements of the case.

Do you see any way of uniting those two systems without their disadvantages?—I think that the only way of meeting it is by uniting the two; uniting the funds and nationality of the Government department with the practical knowledge, zeal, and experience of those who do feel the want, and who have moved to have it supplied.

The Government finding the funds and the private society the zeal and taste?—Yes.

Is not there some little danger in that, that the zeal and taste might make a severe inroad into the public funds?—The public department must then pull the purse strings closer.*

ST. SEPULCHRE'S CHURCH, NORTHAMPTON.

THE NORTHAMPTONSHIRE ARCHITECTURAL SOCIETY.

ON Tuesday, the 11th instant, the foundation-stone of the enlargement of St. Sepulchre's Church was laid by Lord Henley, M.P., who delivered an address. A general meeting of the Northamptonshire Architectural Society, who have identified themselves with the work, was afterwards held in St. Sepulchre's school-room, the mayor presiding. The report was read by the Rev. T. James. In it the committee said:—

"During the year, a most interesting communication was made to the society by Mr. Canon Argles, relating to the discovery of a stone sedile and benches, in the Saxon tower of Barnack. A niche in the west wall, formed by a triangular heading of beam-shaped stones, which had greatly puzzled the antiquaries, was found, on the removal of the soil, to be the canopy of a stone sedile, no doubt a seat of great honour in Saxon times, when the fine tower arch opened into the church, and formed, probably, a chapter-house for the ecclesiastics connected with the building, or, possibly, the tribunal of some secular power. But, whatever its use, it must undoubtedly be pronounced the most ancient place of solemn session and conclave existing in this kingdom."

And afterwards:—

"One other most important class of buildings our society has from the first never lost sight of, though it has had great difficulty, and little external encouragement, in bringing it more prominently forward, viz.—that of cottages for the labouring classes. From time to time, without success, we have applied to local agricultural societies, who might be supposed to have even a nearer interest than ourselves in this matter, but have been unable to get them to join with us in offering a prize or prizes for the best model cottage for the midland districts. At length we have been encouraged in our undertaking by some of our associated architectural societies; and, having hit upon a plan which seems to us to combine every *desideratum* of a good cottage, we are about to publish it, with specifications and estimates, for distribution among our members, and possibly also for general sale. If we are really successful in this design, I feel that we shall have accomplished a work not secondary to that of the furtherance of correct taste and arrangement in ecclesiastic and scholastic architecture; and shall deserve to be ranked among the practical, working societies of the county, if, in addition to handsome churches and good schools, we have done all that externals can do, to give the poor man a comfortable home."

The following paper, on "St. Sepulchre's Church," was read by the Rev. G. Ayliffe Poole, vicar of Welford:—

The most worthy motives for the restoration and enlargement of a church, and those by which, happily, persons are generally influenced in this good work, are those which appeal to our piety and charity; but a special interest of another kind will sometimes attach to a particular church; and it is allowable to invoke that interest in aid, at least, of those which are higher and better. It is the object of the present very rapid sketch to point out in what respects the church of St. Sepulchre's, Northampton, on the enlargement and restoration of which we are now entering, may fairly claim to belong to this special class.

It is scarcely necessary to remind you that there are four round churches, and four only, still remaining in England, and that these were founded during a time when pilgrimages to the Holy City, or the defence of the pilgrims by the united chivalry of Christendom, or the attempt to wrest the sacred places from the hands of the infidels, formed a great part of the serious business of churches and nations of Europe. These churches owe their peculiar form and arrangement to a desire on the part of their founders to embody their recollection of the Round Church of the Resurrection in the Holy City, in which they had worshipped as pilgrims or crusaders. Inferior as they may be in grandeur, as they certainly must be in intrinsic interest; imperfect as they doubtless all are as copies of a remote original, this was the type after which all our round churches were erected, and this the spirit which led to the adoption of their peculiar plan. We may surely be allowed to sympathise with *our* "pilgrim fathers" in their wish to retain such a memorial of Jerusalem and its holy places, and recognize it as a natural feeling of those days when the land consecrated by our Saviour's footsteps was an object of devout aspirations to thousands as they left these shores, and of pious remembrance to the much smaller number who returned to worship the King of the New Jerusalem in their own land.

Two of the churches thus owing their form, and their very existence, to these facts and feelings, were erected by the Templars and Hospitallers respectively,—two religious orders associated under the most solemn vows for the protection of pilgrims to Jerusalem. These were the Temple, in London, so called because it belonged to the Templars; and Little Maplestead, in Essex, which was attached to a commandery of the Hospitallers. But if these two churches seem to be more especially interesting, from the chivalrous orders to which they owed their erection, the other two have also a peculiar claim, and, perhaps, a higher, on account of their greater antiquity. These are St. Sepulchre's, in Cambridge, and the church in this town of the same consecration. Of these the church in Cambridge has, perhaps, the priority, having been consecrated in 1101; but that in Northampton followed immediately after, being assigned, with great probability, to Simon de St. Liz, Earl of Northampton, who died in 1115, after having been long absent from this country. The church, then, if erected by him, must be as old as the former, within a very few years, and may be even older; and there is nothing in the character of its original portion which at all casts a doubt upon the most remote antiquity we might be inclined to give it. Thus, besides its connection with the history of the Crusades, which it shares with all the round churches, we claim for St. Sepulchre's a date scarcely, if at all, less remote than that of the oldest of the other three. And if anything beyond this be necessary to commend it to the interest of our society, and of the town and county of Northampton, we may add that its foundation, remote as it is, is assigned to the first Norman who assumed the name of this town as his title. He was not, indeed, the first Earl of Northampton, for the title goes back one generation further, and to another race. Its descent to this Simon de St. Liz, with those parts of his history which bear on the subject of a church commemorative of his pilgrim propensities, may fairly be considered introductory to a few remarks on the history of the church itself.

The first Earl of Northampton was Waltheof, son of Siward, Earl of Northumberland, a noble and valiant Dane. Waltheof was one of the most formidable of the Conqueror's opponents; but William, in respect for the doughty champion of a fallen race, confirmed him in his former honours, and added to them the earldoms of Northampton and Huntingdon. He gave him, too (let us hope it was not wittingly), a treacherous and cruel companion in his greatness. He gave him Judith, his niece, to wife, who afterwards procured Waltheof's execution, by base, and probably false, accusation. At the same time there was in William's court one Simon de St. Liz, a noble Norman, but lame in one leg, a defect which turned out greatly to his happiness; for when William would have given him his niece Judith, the treacherous widow of the noble Waltheof, with all her possessions, the lady refused to ratify her part of the bargain on account of his lameness. Simon, happy to be thus rejected, married the daughter of Judith instead, and so succeeded to the greater part of Waltheof's estates and to his titles. Soon after this, Simon de St. Liz built the Castle of Northampton; and, about the year 1084, he largely endowed the Convent of St. Andrew, making it, however, unhappily, an alien priory, subject to the Cluniac Abbey of St. Mary de Caritate, on the banks of the Loire. As he advanced in years, his zeal for the faith advanced also; and, towards the close of his life, he took the cross and went to the Holy City. He was fortunate enough to return, and zealous enough to repeat his journey; but, being seized with an illness on his homeward way, he died about the year 1115, at the aforesaid Abbey of St. Mary de Caritate, and was there buried.

The condition in which he left the Church of St. Sepulchre's may be very probably inferred from several indications still remaining. It seems certain that it consisted of the present round, together with a chancel, terminating in an eastern apse. The principal entrance was most likely through a highly-enriched doorway at the west end of the round, which has given way to the present tower. Instead of a tower or other steeple to the original church, the round was crowned with a lofty clerestory or lantern, with a conical roof of high pitch; and, as there was a triforium over the aisles of the round, which has now disappeared, the whole elevation would not be deficient in height. The chancel, I imagine, had no aisles; and, like that at Little Maplestead, which was also without aisles, terminated in an apse.

In the interior, the central circle of eight pillars and arches was surrounded by an aisle with a groined roof, over which was a triforium opening into the church by a series of arches, probably little inferior in height to those below. Resting on these, and rising to some considerable height above them, was the clerestory or lantern,

* To be continued.

doubtless of eight lights, with appropriate decorations. A richly-moulded arch would lead to the chancel, the details of which can be supplied only by probable analogy. This, at least, there can be no reason to doubt, that it was both externally and internally a structure of very considerable elegance, and one which would excite the admiration, as well as the interest, of all who looked on it as a legacy from the deceased Crusader to those who had not been privileged to see its prototype in the Holy City.

It did not, however, satisfy more than two or three generations in the state in which Simon de St. Liz left it; and probably it was then, as it was often again, and is now, perhaps for the last time, want of space for those who would worship in it that led to essential changes in the fabric. It was probably about 1180, during the time of the gradual introduction of the Pointed arch, but while the old Norman details were generally retained (thus forming a transition era), that the northern wall of the chancel was cut through, to form an arcade, for the addition of a northern aisle. The work does not seem to have been judiciously or even carefully conducted, for the changes about this time originated a series of failures in the fabric, which led first to the necessary erection of certain unsightly buttresses, and ultimately, perhaps, to the failure of the round, and the sacrifice of the old triforium and clerestory. The twelfth century, however, probably closed upon a church scarcely differing from that which St. Liz had finished before 1115, except that a northern aisle had been added to the chancel.

Thus, so far as at present appears, the church remained for upwards of a century, for it is not till early in the fourteenth century that there are any indications of a south chancel aisle. And it was before the close of the same century that the present tower and spire were erected. This was not without a purpose; for the round had probably suffered so much by former changes as to require great repairs. The aisle vaults and the triforium were probably sacrified at this time, and the clerestory rebuilt on a much more meagre scale, though certainly not so wretchedly as at present. A tower and spire were therefore required to give character to the church. I need hardly tell you that this last feature is of great beauty; and long may it remain an ornament, not to this church only, but to the town of Northampton.

Whatever has happened to St. Sepulchre's since the erection of the spire has been by way of destruction and deterioration. The only comfort we can derive from an inspection of it is this, that the very fact that matters have been getting worse and worse for two hundred years necessitates so entire a reconstruction, that we destroy, without compunction and regret, what the exigencies of restoration and enlargement require to be swept away; and that we are certain, under the direction of our very able architect, to hand over the remodelled edifice to the parish, and to the people generally, as greatly increased in beauty as in usefulness, and not diminished in interest.

Sir Henry Dryden, bart., in proposing "That the historical interest of St. Sepulchre's Church recommends its preservation," said nothing was truer than a remark made by Mr. James, that restoration not unfrequently meant destruction. More mischief had been done in the last twenty-five years than in any previous half-century, and the time would come when loud and grievous would be the lamentations. They could not do more mischief than to set about knocking down right and left, and then to commence the work of restoration according to their own fancy. Take, for instance, the Elgin marbles. Suppose a committee was formed for the purpose of putting noses and ears, and heads and tails, on those celebrated fragments, what would be the comparative value of them? It would be little more than that of old lime. Those old churches were left them as memorials of the past, and they could not commit a greater architectural sin than by spoiling them as models. The resolution said the historical interest of the church recommended its preservation, but nothing was more abused than the word restoration. Restoration meant to put back to its original state, and the interest of St. Sepulchre's Church would not consist in what Mr. Scott would give them at the east end, but in what other people had left them.

The Mayor was afraid, from the remarks of Sir Henry Dryden, that some persons might go away with a wrong impression. That the work of restoration would be conducted in a proper manner, there was a sufficient guarantee in the name of the architect to whom it was entrusted. It must not be forgotten, however, that, while it was intended that the round part of the church should be preserved in all its integrity, the spiritual wants of the parish must be provided for; and how could they be provided for unless the church was enlarged? He trusted they would all go away determined that that noble structure should not only be preserved as a memorial of the past, but as a place affording adequate provision for the future.

Mr. Scott, in afterwards proposing a resolution of thanks to the mayor, said it gave him peculiar pleasure to see so well-qualified a member of his own profession preside at that meeting as chief magistrate; but it gave him far greater pleasure to hear one of his own profession not only speak in such hearty terms of the dignity of their craft, but, in union with that, advocating in such a heart-stirring manner the claims of their holy religion. In the abstract he agreed with several of the remarks made by Sir Henry Dryden, as all engaged in the study of ancient architecture must do. It was better that ancient monuments should be preserved, where that was possible, than altered. In the case of the Elgin marbles, that was absolutely the case, and the desirability of it would be greater or less with all objects of art, just in proportion as the uses of them were obsolete, or were required to be adapted to the wants of the present day. When first called on he felt very unwilling, and expressed a hope that the present size would suffice, but as such was not the case, was it to be restored as a mere piece of antiquity, or was it to be restored in such a manner that antiquity and utilitarianism should be united? The claims of the present day required that that should be done: at the same time he agreed that as far as was practicable that which was ancient should be preserved, and exposed to view. There were other portions, however, the age of which was doubtful, and it would be ridiculous to preserve a semi-barbarous part on the principle that nothing was to be meddled with. He was glad to say those views were advocated by Professor Willis, for few people had said more against restorations than he had done; and yet, with reference to the restoration of the upper part of Becket's Chapel, at Canterbury, on which he (Mr. Scott) was engaged, Professor Willis not only did not oppose, but urged the destruction of the barbarous additions that had been made to the original building. That was the opinion of the man who stood in the van of the anti-restoration party. He (Mr. Scott) admitted the principle advocated by Sir Henry Dryden, but it must be applied according to the dictates of common sense.

At the evening meeting, Lord Alwyne Compton in the chair, a paper was read by the Rev. T. James, on "Round Churches," to which we shall return.

ARRANGEMENT OF KITCHENS.

WHILE I agree with your correspondent, "J. D. A.," that the "kitchen often has not sufficient of the architect's care in its details,"—that it is apt to be "ill ventilated" and "inefficient," and with some of his views of what a complete apparatus should be, I differ with others. I do not, however, propose to discuss these, but rather to speak of the plan and arrangement of the kitchen itself, to which, if architects would devote more thoughtful attention, great advantage would result to their clients and increased reputation to themselves.

A chief and very frequent annoyance in connection with this department is that of the smell of cooking, which is so readily diffused throughout a house. That this evil is the result of defective ventilation, and ought to be avoided in all new erections, and may be remedied in old buildings, is unquestionable. The main difficulty is that of convincing either employer or architect, and too frequently *both*, of the necessity for very special arrangements for the purpose.

To provide, as "J. D. A." recommends, spring doors to close, which servants invariably take special trouble to "wedge" open, and a skylight opening above the cook's head for the development of rheumatism, are but sorry ventilating arrangements; and, I would say, should only be submitted to when proved to be unavoidable.

A good kitchen should, of course, be roomy and lofty. It should be lighted by windows in the side walls, of full size, reaching within a foot of the ceiling, and from 3 to 5 feet from the ground, according to the height and size of the kitchen. These windows should open readily, both at top and bottom, for *summer ventilation*, and should be situated relatively to the cooking apparatus, so that the air admitted through them should tend to direct the heated air of the kitchen *towards the smoke and ventilating flues*, and away from the doors communicating with the main building.

The cooking apparatus, in recesses, should occupy one entire side of the kitchen. These recesses should have "hoods," or canopies, commencing 6 feet from the floor-line, and reaching to the ceiling, enclosing the whole space above the stoves, hot-plates, &c. Each recess should be provided with a smoke-flue, and also with a ventilating flue within the "hood," and near the ceiling, to carry off the heat and smell of cooking. Above the roasting range, in the centre of the chimney-breast, and near the ceiling, a ventilating flue should be constructed, of full size, to obtain ample ventilation in cold weather, when the windows cannot be kept open. The ventilating flues, if constructed under Boyd's patent, with cast-iron plates dividing them from the smoke flues, derive so much heat from the latter as to maintain in all weathers a powerful upward current, without risk of return smoke, dirt, or annoyance of any kind.

Provision must be made for the free supply of fresh air to the kitchen in cold weather, or the ventilating arrangements will manifestly fail. The position of the windows having been indicated with the view of favourably influencing ventilation, it follows that the best position for the admission of fresh air in *cold weather* will be in their vicinity, and probably through gratings on the wall face, immediately beneath them. The air thus supplied should first be made to circulate in a chamber closely adjoining the heated apparatus, whereby it would be sufficiently raised in temperature to avoid risk of giving cold.

The door between the kitchen and scullery should be conveniently near the stove or hot-plate where the chief boiling operations are carried on, so as to avoid unnecessary traffic in the kitchen. The ventilation of the scullery should be duly cared for, upon the same principles as indicated for the kitchen.

Much may be effected by a good plan towards the complete isolation of the kitchen department. Too frequently the kitchen-door affords a ready channel of escape for heated air from the kitchen to the main building. Instead of this a passage, well ventilated at both ends, should intervene, to which the doors of communication with the kitchen and house respectively should lead at distant points.

Should you deem these observations of sufficient interest to claim a space in your widely-circulated journal, I shall be glad on a future occasion to trouble you with a few remarks, in the hope of inducing the satisfactory ventilation of dwellings in general. The vital importance of ventilation you have yourself ably insisted upon on many occasions, and the conviction of its necessity is extending; but it is deeply to be regretted that the builders of houses systematically disregard its obligation.

D. O. BOYD.

THE article by "J. D. A.," in the *Builder*, p. 574, on the subject of kitchen arrangements, is one which deserves to be followed up. His instructions on a large scale, if acted on, would go far to bring about some ameliorations in that greatly-neglected department of the English mansion. To one whose travels have brought him in the way of becoming acquainted with the economy of foreign culinary arrangements, the kitchen of the British islands can hardly fail to appear as if planned for some totally other object than that of cooking. The room is generally commodious enough, and the display of chairs and fireside conveniences more than sufficient. As a contrivance for the accommodation of the servants, the place is a decided success; but, as a culinary workshop, it is as complete a failure.

A large sum may very probably have been paid to some ironmonger,—whose ideas of dinner hardly go beyond the inevitable potatoes, and who cannot believe in the possibility of breakfast without tea or coffee,—for an imposing mass of metal called a *range*. It might be supposed that a convenient and prominent place would be found for this wonderful piece of hardware. Nothing of the sort. The builder of the premises, looking upon the kitchen merely as a room, and never having seen the grate or stove of a room placed anywhere but in a recess or chimney, has intuitively constructed a wide hollow in the wall for the accommodation of the range, over which, of course, runs the legitimate mantel-shelf, which every orthodox chimney must have, and for which we have the model already to our hand in the first room we choose to go into. Of course, there is a proper height for a chimney: everybody knows that: 4 feet is just about the thing. It is true that within these last twenty years mantel-shelves

have been gradually diminishing in height; but this change not having reached the cellars, there can be little doubt as to the height of the fireplace. A mantel-shelf, therefore, must run in front of our range at a height of 4 feet from the ground, quite irrespective of the relative position the shelf and the cook's head are to occupy, when the latter is at work. Place your cook in front of the range, and let him or her have a dish or two which require careful watching going on. The under-edge of the mantel-shelf comes, we will say, on a level with the cook's chin; so that, in standing up straight, she cannot see her pans even in the distance: she must stoop, and, passing her head underneath the shelf, poke it into an ill-lighted recess, and retain it in this constrained position so long as the article cooking requires close attention. Apparently with no other very obvious object in view than that of rendering more meritorious the art of cooking under difficulties, it is not unusual to place in front of the range a broad fender with a flat top, designed evidently for a row of pans, which most admirably answers the purpose of placing at a disadvantage the centre of gravity of the operator, who is supposed to be stooping over her work, her shins rubbing on the edge of this fender, the back of her head making acquaintance with the under-surface of the mantel-shelf, her face exposed to the heat and smoke of a grate full of live coal, and her dress demanding a portion of her attention to prevent it catching fire! And we wonder why cooking as an art has ceased to be. Foreigners, who see no lack of eggs in this country, and plenty of butter, wonder how it is they can rarely or ever get an omelet worthy of the name, while travelled Englishmen, without knowing the reason why, find themselves obliged to bid good-bye to many a savoury dish as soon as they set foot on the English packet in the Channel.

Now, not only in France and other European countries, but among Turks, Arabs, and other Asiatics, common sense has suggested and brought about the raising of the front of the chimney to such a height as will allow the head of the cook easily to pass under it, and this has led to the greater projection of the chimney, and the bringing forward of the range out of the recess in the wall, so that the cook can scrutinize any of her pans at her ease, standing under a sort of wide canopy, which collects the whole steam and fumes, and directs them into the chimney. It is in the British Islands alone that the kitchen-chimney is modelled after the fireplace of an ordinary chamber, and yet this is the so-called country, *par excellence*, of practical good sense and comfort, where there are professional builders, who can count the houses they have erected by thousands. What would be the fate of any manufacturer, chemist, or tradesman, who should conduct his business after such a fashion, who should persevere in constructing his furnaces in such a way as to give his workmen the greatest possible amount of inconvenience; and rather than alter his arrangements would forego the advantages to be derived from the proper carrying on of all the more delicate processes of his business? Yet this is what is being actually done in almost every kitchen in this country, whether in Belgravia or Islingtonia, and with very few exceptions, in the mansions of the upper ten thousand as in the houses of the more humble millions. A little more attention to such obvious common-sense and inexpensive suggestions would do more to reform the British kitchen than the complicated arrangements so much in vogue, which seem chiefly contrived to benefit the pockets of patentees and ironmongers.

J. B. M.

NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.

THE fourth annual meeting of this Association will be held at Glasgow, on Monday, 24th of September, and the five following days. The order of proceedings will include:—

Monday.—Special service and sermon to members and associates in the cathedral. Sermon to be preached by the Rev. John Robertson, D.D., minister of the High Church. General meeting in the City Hall. The opening address will be delivered by the Right Hon. Lord Brougham.

Tuesday.—The Lord-Advocate of Scotland, the president of the First Department, will deliver an address in the Common Hall of the University. Immediately thereafter the business of the several departments will commence in the class-rooms of the University appropriated to their use, when papers will be read, and discussions taken on the subjects embraced under each. In the evening there will be a *conversazione*, on the invitation of the Lord Provost and members of the Corporation, in the Corporation Galleries, Sauchiehall-street.

Wednesday.—Sir James Kay Shuttleworth, President of the Second Department, will deliver an address. The business of the departments will then proceed. In the evening a working men's meeting will be held in the City Hall, when Lord Brougham and other leading members of the Association will be present. The Corporation Galleries will be open, also, for promenade to members and associates.

Thursday.—The Hon. Arthur Kinnaird, M.P., President of the Third Department, will deliver an address. The business of the departments after. Conversazione in the evening, in the Queen's Rooms, Kelvin-grove Park.

Friday.—Sir James Emerson Tennent, President of the Fifth Department, will deliver an address. Immediately thereafter the business of the departments will proceed as before. Members and associates will afterwards dine together in the City Hall, Lord Brougham in the chair.

On *Saturday* the concluding meeting of members and associates will be held in the Trades' Hall.

METROPOLITAN UNDERGROUND RAILWAY.

THE works for this line are now making progress. Reports have reached us of costly errors in re-forming the sewers on wrong level, but we have no certain information on the subject. The railway, it is expected, will absorb a million and a half of money at the least before it is opened for traffic. It will commence at the Paddington station of the Great Western Railway, into which it will run on a low level, and then descend till it begins to burrow under the ground. Passing under, and in a line with, the New-road, it will pick up the traffic of the London and North-Western Railway at Euston-square, which will be carried to it by an underground branch. At King's-cross it will pick up the passengers from the Midland Railway and the north of England, and proceed to Farringdon-street. Here it will throw out a branch into, or rather under, Smithfield, and wait until the London, Chatham, and Dover shall meet it from the other side of the Thames.

The contracts for the works have been taken by two firms: Mr. Jay has the section from Farringdon-street to Euston-square, and beyond that to Paddington has been taken by Messrs. Smith & Knight.

The heaviest part of the line is at King's-cross. Straightforward tunnelling, or even going round a corner at a sharp curve, with nothing, to all outward appearance, to guide you as to the spot at which you may come out, is simple and easy to those who understand the business; but such a complication as that at King's-cross seems thoroughly bewildering.

At King's-cross there are two branch lines running up to the station, one on the east, the other on the west side. The two lines run in on a curve, the one from the west running in an easterly, the other from the east in a westerly direction, and they therefore cross each other something in the form of a letter X. At the point of intersection the arch of the tunnel has in consequence to be groined. As the main tunnel is 28 feet 6 inches in width, and the branch lines about 14 feet, the necessity presents itself to combine in one arch at the point of junction two arches of a different radius.

The *Engineer*, in a recent account of the works, says,—"The tunnelling has to be carried out in forms which may be represented by a monogram formed of the letter X and two Y's placed thus: ⋈, each leg of the letter X forming the upper limbs of the Y's, and all the arching and building up has to be made to fit accurately together. An ant's nest, a rabbit warren, a colony of beavers, or mole's burrow, would not be more intricate. We fancy that we have explored the whole region, and traversed the whole maze, when we come upon the flicker of candles through an interminable tangle of timber, and are informed that the work there is the pointsman's house, with retiring rooms. The immense baulks of timber supports become more and more numerous, and we feel something of nervousness when we are told that this was and is the most critical part of the business. The walls and arches of the small and large tunnels of the great bell-mouth press with such immense force on this pointsman's dwelling, which is at the centre of the complicated junction, that it has been necessary to use the greatest possible precautions to prevent the whole from coming to one grand collapse. There are timbers upright, horizontal, diagonal, straight, curved, interlaced, and crossing and recrossing each other, till it becomes a marvel how it was possible to have got such masses under the earth and into any useful position. The ground plan has now grown more complicated: the monogram of the two Y's and the X has received the addition of one large and two small O's, and these letters are placed in the forks of the two horizontally placed Y's. The 'round house,' which is a sort of key of the position, is completely covered in by a circular dome, and here will be stationed the switchmen and signalmen, who will attend to the points necessary for running the branch traffic on to the main line: for the through trains—that is, from Paddington to the City—there will be no points to attend to at the junction, as the switches will, of course, be open."

The brickwork of the tunnel is 2 feet 3 inches in thickness, and some idea of the extent of the work may be judged from the fact that 10,000 bricks are swallowed up for each yard formed as the tunnel advances.

MUSEUM FOR BUILDING MATERIALS, MELBOURNE.

UNDER this title the Department of Public Works at Melbourne, Victoria, has recently erected an experimental edifice of a novel kind. In the external portions are introduced every procurable variety of stone, brick, cement, lime, timber, slate, &c., both colonial and imported, for the purpose of practically testing the qualities of the various materials, and also for exhibiting samples of workmanship to be regarded as standards of reference in future contracts. The interior of the building, which contains a hall 66 feet by 33 feet, is to be devoted to the exhibition of such specimens of art and mechanism as are applicable to the requirements of decoration or construction.

The Museum has been carried out at the suggestion and under the honorary direction of Messrs. Knight & Kerr, the architects to the Victoria Houses of Parliament; and an advertisement in our present number invites contributions from England of a similar kind to those displayed at the Architectural Exhibition, such contributions to be accompanied with full particulars and prices, for the guidance of intending purchasers.

THE FIRST SUBWAY FOR WATER AND GAS-PIPES IN LONDON.

OUR readers are aware that the Metropolitan Board of Works, with a view to obviating the expense and inconvenience attending the breaking up of the pavement for the repair of mains and pipes, sewers, and other underground works, determined, in making the new Covent-garden approach, to form a subway under the street for the reception of gas and water mains, electric telegraph conductors, and other matters. The construction of this subway in the street commencing at the corner of Long-acre, opposite the end of Cranbourn-street, and 318 feet in length, is proceeding rapidly. The arch of the subway is 12 feet in span and 1½ brick thick: the headway in centre is 6 feet 6 inches. There are side passages to admit of connection with houses. The sewer 3 feet 9 inches by 2 feet 6 inches is below the road level of the subway. On either side of the subway at a short distance from it the vaults for intended houses are being formed. We must applaud the Board and their architect, Mr. Marrable, for the improvement thus inaugurated. Mr. E. Thirst is the contractor employed. Mr. W. Fisk is the clerk of the works.

THE BURIAL OF THE POOR.

THE other day a poor care-worn looking woman applied to one of the police magistrates for advice respecting the interment of a child who had died. It appears that the dead child was in the same room with the living family, and was remaining there after having perished through small-pox. The parents being without the means of defraying the cost of the funeral, the mother had made application to the parish authorities, who refused assistance, saying that they must wait until the man got his wages on the following Saturday. It was pointed out that this was dangerous to the family and those living in the adjoining tenements, and that supposing the wages to be sufficient for the purpose of defraying the expense of the funeral, the family must starve during the ensuing week.

The funerals of the struggling classes in large towns are a difficulty: the parish authorities say

that, if strict rules are not observed, the expense thrown upon the ratepayers in poor parishes would be very great. It should, however, be borne in mind that the danger is imminent in keeping the dead in rooms surrounded by other rooms thickly crowded with people; and measures should be taken to prevent the keeping of dead bodies in such situations for a week, fortnight, or (as we have known it), three weeks. The position of persons situated as the woman above referred to should be very carefully and kindly considered. Those who are really unable to pay for the burying of their dead should be assisted; but, in case of imposition, punishment should be resorted to.

It is remarkable that, amongst the poor Irish, some preparation is generally made for their burial. They often, in secret, manage to hoard some valuable for this purpose, or else their neighbours raise a subscription. Even in those localities which are inhabited by thieves and other notorious persons, by the disposal of some article of small value by raffle amongst a number of subscribers, for a sum which each can conveniently spare, the necessity of applications to the parish is obviated. There are also the trade and other societies. Numbers, however, who fall into the "Town Swamps," being unaccustomed to the ways of those used to such circumstances, are comparatively helpless.

THE CRAIGENTINNY MAUSOLEUM.

THE mausoleum erected to the late Mr. Miller, of Craigentinny, on a portion of his estate near Edinburgh, on the Portobello-road, was, on Thursday, the 13th, consecrated by Bishop Terrot, according to the forms of the Episcopal Church. The mausoleum, which is from a design of Mr. Rhind, is a massive structure, something after the fashion of the ancient Roman tombs, and nearly 50 feet high. It is oblong in form, and is canopied by an enriched circular roof, in the gables of which are sculptured figures in full relief, modelled by Mr. Thomas, of London. There is also a rich frieze, with carved festoons of flowers and fruit. But a still more important decorative feature remains to be added, namely, four immense basreliefs for the panels, which are now being sculptured in marble by Mr. Gattley at Rome. The subjects are classical. The mausoleum, within which the remains of the deceased are interred, will, we believe, cost about 8,000*l.* whem completed.

FALL OF A HOUSE IN CLERKENWELL.

SOME of our readers are calling out for further information as to the cause of the fall of the public-house in Goswell-street,—"The Hat and Feathers," mentioned last week. Some investigation has, doubtless, been made to settle on whom the loss is to fall, but no clear opinion appears to have been arrived at. Some have attributed the disaster to the fall of a heavy stone core, prepared for the cornice, which, striking on the scaffolding, might have caused one of the uprights to kick in a pier, and thus, as there was little external brickwork, the house having a circular corner, open, and being carried mainly on narrow piers or columns and girders, have led to the disaster. An old party-wall on one side, not in a very good state, had been made use of and was raised to some extent: the mischief has been imputed to this by some. On this point the district surveyor, Mr. Sibley, writes to us as follows:—

"Sir,—Having seen some statements to the effect that the disaster may be ascribed to the raising on the old party wall, I beg to say that I conceive them to be perfectly erroneous.

The wall in question was a 14-inch wall, plumbed and found to be fair and level by the surveyor of the adjoining owner, who also declined any interference. I need scarcely inform you that this wall could not be deemed to be in any way ruinous.

The wall itself stood unmoved without a fracture, with the exception of a small part, about a third of the upper story *only* having been drawn in by the building collapsing; in itself a conclusive reply to this statement.

The building was well timbered, and the brickwork also of good character. It is a matter of great congratulation that the disaster was unaccompanied with loss of life or injury to person."

The proprietor is Mr. Leake. Messrs. Finch Hill & Paraire are the architects. Mr. Dent acts for the lessee of the adjoining house, and Mr. Hardwick for the Charterhouse, to which estate the land belongs. Mr. Hill is the builder.

THE "NINEVEH" REMAINS.—It is stated that a French *savant* and traveller of reputation denies altogether that the remains discovered by Mr. Layard, and now in the British Museum, have anything to do with Nineveh. His proofs will be looked for.

THE ANNUAL DINNER OF THE BUILDERS' BENEVOLENT INSTITUTION.

THURSDAY, the 25th of October next, at the London Tavern, should be noted down by all interested, as the time and place of the thirteenth annual dinner of the Builders' Benevolent Society. The time is long gone by, when much urging or canvassing were requisite to get up a respectable show of diners at the annual convivial, and yet charitable, meeting of this now prosperous and well-established Institution. What we have at present to do, by way of aiding in this good cause, is merely to jog the memories—not the wills—of the troops of friends who can ensure its continued and increasing prosperity. Let all and sundry remember Thursday, the 25th of October, then; and, in good time, cause all other arrangements to steer clear of that settled pre-engagement.

PLAN PROPOSED FOR THE HOSPITAL OF A REGIMENT.*

"Le bien le plus précieux est le sang du soldat."

I SUPPOSE that it is not possible for any one, at the particular point which the demonstration has now reached, to tell us any new principles of hospital construction. The rules required for bringing modes of structure and arrangement into accordance with the absolute laws of health have been laid down, and there is no appeal from them, and there is no conceivable ground on which they can be called in question.† Besides, there are two or three existing structures which, owing to certain happy circumstances, it has been possible to erect in the manner prescribed by these laws, and where these structures fall short, as they do fall short in some points, one can hardly regret the defects, considering that a valuable lesson is thereby more impressively conveyed.

This sketch seeks to address itself, among other points, to a practical difficulty, not of principle, but of detail. In most large buildings, notably in all Government buildings, perfection is very apt to be missed owing to the limitation imposed by

"—— that eternal want of pence
Which vexes public men."

I propose to endeavour to see how far it is possible to bring the absolute laws of healthy construction into harmony with a state of public affairs which is indicated by the existence of a tenpenny income-tax. When such is the idea from which one starts, it may seem likely that there must be a good deal of giving and taking on both sides, but I humbly conceive it to be practicable to obey all the most important and imperative laws of health, and, at the same time, to build a cheap hospital. Hitherto, military hospitals have been costly as well as bad, because money has been spent in carrying out the worst principles. It is worth while to try if we can project one in which sound principles can be given effect to without great expense.

The grand principles which it is necessary to bear in mind are three—absolute cleanliness, absolute purity of atmosphere, and the largest practicable allowance of sunlight. In so far as these three points are reached or fallen short of, so far is the building a success or a failure. What one has to attempt is to make the fulfilment of these principles as much as possible consistent with individual comfort, and to make it as much as possible subservient to the most effective discipline, and the simplest and easiest administration. Happily it is found in practice to be the case that structural arrangements which provide the greatest cleanliness and the purest air are also those which most conduce to personal comfort, aid effective discipline, and render administration easy. Further, the points on which money has hitherto been lavished, are those which are rather opposed to than promotive of health. The stateliest buildings and great masses of brick and stone have been found, ere this, to promote anything but the health of their inmates. Health has been known, ere this, to visit the victims of famine and impurity, rather than in such places as these, in tattered hovels, and even under the hedges on the public road. The objects in view, then, being economy and efficiency, I propose to plan a hospital for a regiment. That is the only sort of army hospital which the present generation is ever likely to see built. There are but three general hospitals for the British army. One is small and of little note. One was not built as a hospital, and has been long condemned. The third, at Netley, was condemned (by the *Builder*) before a stone had been laid down. It is hardly possible that such an opportunity for building a perfect general hospital can ever occur again as was afforded when it was determined to build one for 1000 beds, in 1855. The lessons to be found

"Among the myriad-room'd
And many-corridor'd complexities"

of the Royal Victoria Hospital will not, whatever they may be, be lessons in sound hospital construction. Strangely enough, we have been lately told by an authority which all men respect, that, for reasons which those who know the subject best must be permitted to think very visionary, we ought to huddle together the sick of several regiments—that, on considerations other than sanitary, we ought to *congregate* sick. I give my vote, with Sir John Pringle and Sir William Blizard, for *segregation*.

For many reasons, the best form that could be adopted would be a straight line, with the offices in the centre, the wards extending on either side of the offices, and the ward conveniences at the furthest ends of the wards; but to accommodate ninety-two beds in this way, on one floor, would require a line so extended as to become inconvenient. On the whole, I venture to submit that the form shown in the plan is the best for the requirements in view, that a smaller number of objections can be raised to it than to any other. Every brick and every pane of glass would have its own share of the sunlight, and each part of the whole would have as much chance of being blown upon by the direct current of the wind as is possible where any form but that of the straight line is adopted. The choice seems to be between this form and that of the Melville Hospital at Chatham, where three parallel blocks are simply connected by an open colonnade, and in which the different offices are distributed among the blocks, and placed at that end which touches the colonnade. Now in all pavilionated buildings where the pavilions are placed side by side but little of the *direct* current of the wind, from whatever quarter it may blow, can ever reach any part of the whole building, excepting on one side of one pavilion, or through the windows at the free ends of the pavilions. This is a consideration which does not seem to have been much thought of. It is one, however, which must very forcibly present itself to the mind of any one who may have had occasion to treat sick in a hospital where there is marked "stagnancy" of air from elevation of the neighbouring ground, or from the neighbourhood of dead walls.

Again, in parallel pavilions there seems always to be a difficulty about the place for the small wards, which must be provided somewhere. At Lariboisière, they are at the farthest end of the long wards, so that you must pass through the latter to reach them. Still further, what sort of a view is there out of the windows? At Lariboisière, if one may hint a fault and hesitate dislike about what seems to be almost a perfect plan, an extended view can only become attainable by placing yourself between the filthy latrines, which are so much condemned, and the foul-linen store. At the new Marine Hospital at Woolwich a patient who looks out of any ward window proper will see nothing but another sick marine in the opposite pavilion, like himself vainly trying to obtain a distant view. If our sick marine in search of the picturesque perseveres, he will be rewarded by a very glorious landscape, but to enjoy that he must go to the end window, and perch himself on the washhand-basins, with the water-closets on one side and a sink on the other, surroundings which can be by no means exhilarating. If the form of the Vincennes Hospital is adopted (not the details, which seem to be objectionable on two grounds—the separation of offices and the intercommunication of wards without intervening passages), and if the transverse block is used for offices and attached directly to the two perpendicular ones, then you have simply an enclosed square with one side wanting. The form of the letter H, and the form adopted at Dundee, which is the letter H, with one-half of the perpendicular sides struck off, are open to the objection that there are closed angles. On all these considerations, setting one thing against another, I submit that this form, for accommodating ninety-two beds on one flat,* is the most advisable. It provides a glazed square in the

* By Dr. Combe, Royal Artillery.

† The latest, and, as far as I know, the best and completest detail of these principles is to be found in the various papers by Mr. Roberton of Manchester, which have appeared in the *Builder*, especially three in August and September of 1858, and in the papers by Miss Nightingale which were read to the Social Science Association at Liverpool.

* The regulations require accommodation to be provided in the ratio of one bed for every ten effective men, and the average strength of a battalion may be taken at something between 900 and 1,000.

centre, cut off from the offices by glass, and if deemed necessary, the three other limbs of the cross could be easily isolated in the same way.

The building must be sufficiently raised from the ground on a solid, impermeable foundation, and the walls need not, as far as health considerations go, be much more than a screen of brick, sufficiently strong to support themselves and a light, high-pitched roof. Great thickness of walls is no sanitary advantage, but the reverse, while it must add materially to cost. Does any one object that a building so constructed would not be sufficiently permanent? Surely we need not provide military establishments for a remote posterity. A gradually progressive increase of armaments all over Europe is what Mr. Carlyle would call a "self-cancelling business;" and it seems evident that before the least enduring structure, now erected, can become dilapidated, a climax in the world's affairs must occur to render it, one way or another, useless.*

"Large wards" and "small wards" are comparative terms. In Paris, what we call a large ward is looked on as a small one, and what we call a small one they would hardly consider to be a ward at all. With this question is closely connected that of discipline, and that demands a word or two of explanation. The non-military reader must not suppose that military discipline and military hospital discipline mean the same thing. In this application method, management, or arrangement would, perhaps, be more correct terms than discipline. Between the sort of discipline required in a civil hospital and that required in a regimental one there is a very broad distinction. It arises from this. In the former your arrangements must be made on the supposition that the great majority of your patients will need much extraneous assistance, and that all will need a certain amount of it. In the latter it is safe to suppose that but rarely, only now and then, will cases occur which are quite unable to help themselves, and that the great majority will be almost as capable of hospital work as the hospital servants. From this it results that a great part of the ward work can be done by the patients themselves; and if some theories lately broached by Mr. Neison have any truth in them, the more work they have to do the better. As to the minute details which go to make up the meaning of the word discipline in a military hospital, that officer is the best who can discover the exact point at which interference should cease, and spontaneity of individual action be allowed full scope. Perhaps the best plan is to put out of reach the means of interfering with sanitary arrangements. In naval general hospitals, and in most civil hospitals, it appears that one attendant is provided for every seven patients. If that is a good rule, I think we may say that for a regimental hospital one trained sick orderly to every fourteen would not have too much to do. The number in each ward should therefore be a multiple of seven; and thoroughly convinced as I am of the total impossibility of maintaining proper discipline in a small ward, and believing that it is better not to go much beyond thirty, I propose to place twenty-eight beds in each ward.

The wards are 100 feet long and 22 feet broad. A height of 15 feet will give 1,178 cubic feet per bed.† This "cubic space" is an arbitrary, and apt to be a misleading guide; very useful when we lay down laws for buildings of small space, which is liable to be encroached on, but of little use on such an occasion as the present. The consideration that ought to be attended to is not the number of inches of space, more or less, but the facility for the renewal of air. Proceeding on an estimate of the rate and quantity of excretion of carbon from the lungs, it has been laid down that 2,000 cubic feet per person are required when windows are opened once a day for the restoration of the air. Of course, a very much larger space would be required if the windows were opened less frequently, or if walls did not happily allow of a constant transference of air.‡ A less space is required when the means of changing the air are ample, and constantly in operation. The high-pitch of the roof, which I propose to leave open interiorly, would add very much to the air-space. Besides that, I propose to have ridge windows, or proper dormer windows, leaving it possible to open them at discretion. In addition to all this, there would be a window and a door at the end, by opening which a flood of air could be, at any time, poured through the entire building. There are seven windows on each side. Where so many are provided, the fashion of the windows is a matter of indifference. I confess to a prejudice in favour of the old-fashioned sashes. Perhaps, the best form would be two sashes of the ordinary sort, and above them, and so far independent of them, a large single pane opening by means of a pivot, as is done with all the parts of the tripartite windows at the Middlesex Hospital. The windows should be low enough to permit the great luxury of looking out of them; high enough to be decidedly above the level of the patients' head in bed; and they should reach to within 1 ft. or 2 ft. of the top of the wall. They are 4 ft. broad.*

Is there in this arrangement the promise of a sufficiently frequent renewal of air? The whole art and mystery of ventilation is this,—to provide a constant renewal of clean air with the least degree of discomfort from "drafts." It is customary to say that the best ventilation is by windows and fireplaces. That is partly true and partly not true. In the first place, the fireplace and chimney are not, *in intention*, any part of the system, and we are bound to give our assent to a principle laid down by the Commissioners on Warming and Ventilation (Messrs. Fairbairn, Glaisher, and Wheatstone), that the firegrate should "not be studied as a contrivance for the ventilation of rooms; that so long as it is studied with a view to a twofold application (warming and ventilating), it will not succeed well in the performance of either." In the second place, windows can only be useful for ventilation when they are open, and in making our plan we must allow for the prejudices of foolish people who think it dangerous to admit "night air" through an open window, and prefer to breathe over and over again air tainted with the excretions of their own skin and lungs. Accordingly, I think that something more is required than the fourteen lateral windows, the end window, and the roof-windows. That I propose to give by placing a Moore's ventilating pane in the upper part of each window, the means of regulating which would be under lock and key, the latter in the hands of the surgeon; and, also, by introducing one or two of Mr. Jennings's very beautiful ventilating bricks towards the top of the wall, between each window-space.†

If two indispensable requirements—purity of air and ample window space—are fulfilled, how far does this plan meet the other—the greatest possible cleanliness? In plans and in recent buildings one most often sees all the domestic offices placed together, but it would be difficult to say why such should be the case. Any one who knows how stupid soldier orderlies sometimes are will see a very good reason why there should be no chance of their mistaking one of these places for another, and that it may be of some consequence that they should have to enter a separate door to reach each of them. The proposed distribution seems to provide for convenience, distinct ventilation, and efficient drainage. In the ward given in outline only there is suggested a different position from that shown in the other two. No instance can be shown in which a ward or room is tainted by the sewer air of a neighbouring projecting water-closet, *through the window*. The impurity is always due to the want or imperfect ventilation of the necessary connecting lobby. Passage through the *external* air always dissipates the effluvia. This of course does not apply to such a case as where the arrangement is a series of open iron tanks, so close to the window as to obstruct the light, an arrangement which is to be seen in a very recently erected barrack. It must be confessed that the offensiveness of these places in military hospitals is most frequently caused by the patients putting improper things into them. This is a matter which must be regulated by individual discretion. My own humble opinion is, that the things so misused are such as need but seldom or never be found in any hospital; that tow, poultices, sawdust, quicklime, and chloride of lime are much better away; and that the best disinfectants and "deodorizing agents," are pure air and pure water, and plenty of both. In the watercloset chamber there should be a trapped, air-tight basin, with flushing power for emptying and rinsing out close-stools and bed-pans. The water-closets, scullery, and kitchen, should be lined throughout with white glazed tiles. The sink in the scullery should be of enamelled metal. People say that the Yorkshire stone troughs are the best, and that they do not stink, but, in point of fact, they do stink. The ward-wall plaster should be Keene's, or the Parian cement or some other smooth, non-absorbing substance.

At convenient spots in the centre of the floor there would be two fire-grates, with a downward chimney-flue, and removable in summer. One of them would have two fire-faces. The fire space should be made entirely of fire-lump, so as to prevent unpleasant contamination of the air. Perhaps none are better than those made by Mr. Pierce, of Jermyn-street. The fireplace, standing in the middle of the ward, could be fitted with a means of keeping poultices hot, as is done in French hospitals. At present the "hot poultice" is apt to be just so much cold dirt, and a late distinguished surgeon, when he found one in his wards, used to do with it as Dr. Slop did when he had his celebrated controversy with the maid Susannah over the cataplasm for little Tristram's wound.

For the sake of cheapness of material, I shall be content with a flooring of fir. Most people say that frequent washing of wood floors is a cause of erysipelas, but it would not be easy to demonstrate a connection between the two except on the *post hoc ergo propter hoc* principle. When you find erysipelas in a hospital you are likely to find present much more probable causes than soap and water and the wholesome practice of scrubbing on the hands and knees. It is quite true that in old hospitals where there has been a long course of dry scrubbing of soft wooden flooring, and especially where sawdust is allowed to lie about, you will find between the joists a quantity of woody *detritus*, and that when water reaches this, there is just the condition which may give rise to noxious effluvia; but I suspect that when erysipelas or pyæmia occur, the cause must be sought in something much more palpable and potent. Remember, too, that soldiers are, more than other men, but children of a larger growth; that the two principles which ought always to be set before them are, first, obedience, and then, cleanliness, and you will admit that, just as children in a nursery should be surrounded with objects of beauty and symmetry for their education, so should these full-grown children be taught the great lesson which is conveyed by a plentiful and frequent use of soap and water.

There are two small wards of four beds each. If you have an eye-case with much intolerance of light, you must either place it in a small ward in which the light can be regulated for the exclusive use of one, or you must allow the patient to wear a shade, which leaves the inflamed eye hot and unventilated. Anything is better than putting up screens in a large ward. Other cases may also occur which the surgeon may wish, for special reasons, to seclude. If these two wards were to be looked on as a permanent part of the accommodation, they would be the greatest blots in the plan, but they should only be required under occasional and exceptional circumstances.

There is one particular convenience wanting, because even in the best regulated establishments it is always a cause of offence. All that is required in place of it, is the arrangement which was mentioned in a late *Builder* as having been put in force at a recently built club-house, after trial and failure of the more common plan. This arrangement has now been in use at that club-house for some months and answers well. There is no "itch ward," as none is required. There is no "foul linen store," because foul linen should be sent away at once and, in contradiction to Napoleon's maxim, should not be washed at home. A small quantity requiring temporary storeage may be provided for by a cupboard in the purveyor's store-room. Of course there is no "ward for contagious diseases." Should the surgeon wish to isolate a case, he has only to leave one or more beds on either side of his patient empty. If that does not satisfy him, all he has to do is to open the end doors and windows which would enable him to pour in such a flood of air as must surely blow away every particle of *contagium!*

The offices are cut off from the rest of the building by a passage, 15 feet long and 10 feet broad. It should be altogether of glass. Two or three of the offices might be dispensed with, and

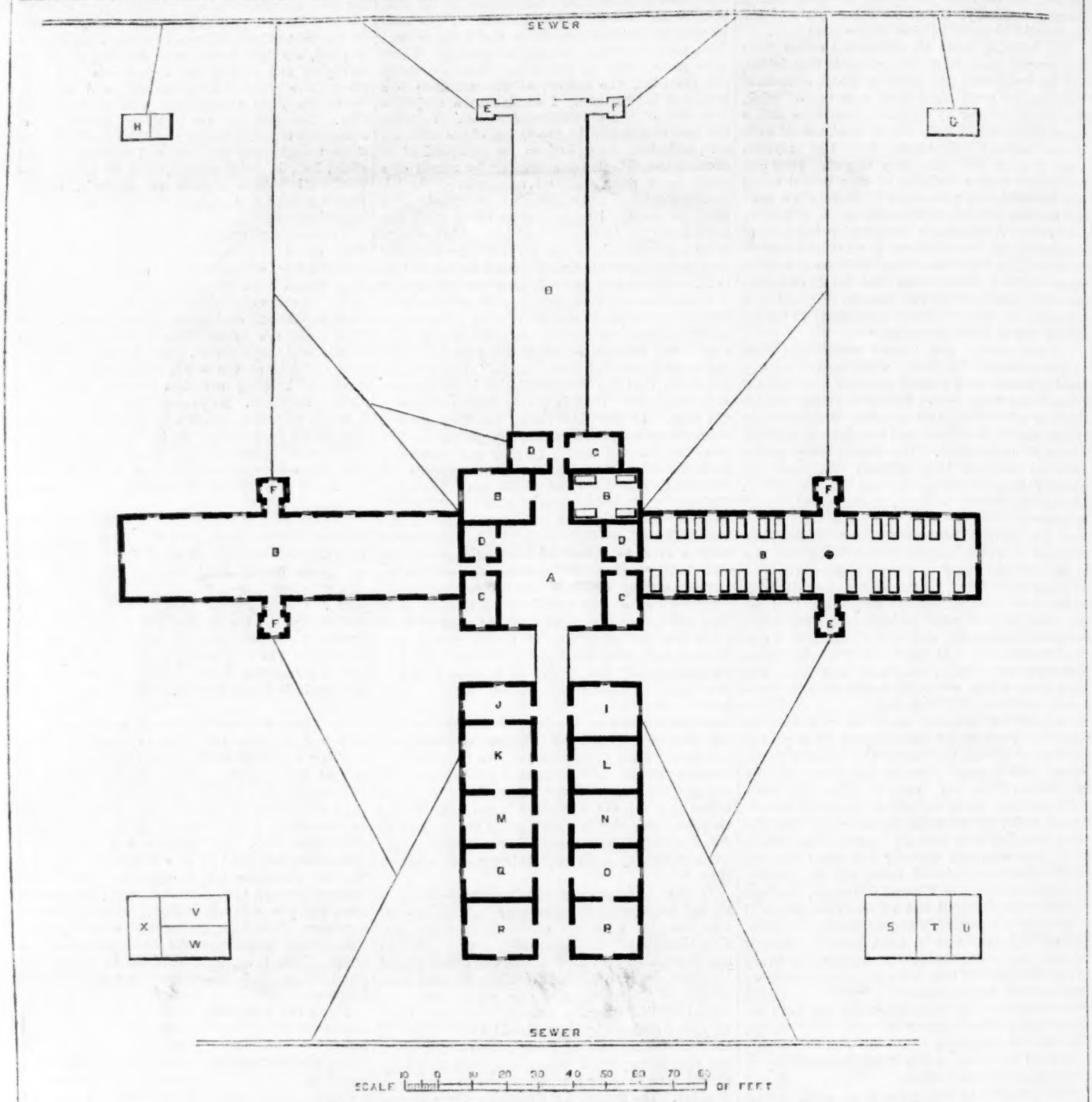
* "It is often bad economy to build in too temporary a manner, but the converse is also true. The best materials should be provided where they are required, but it is quite proper to use inferior materials when they will answer the purpose as well."—*War Office Circular, April*, 1860.

The latest War-office regulations prescribe 1,200 cubic feet.

‡ Some very interesting experiments on this subject are reported by the Commission on Warming and Ventilation.

* In the Report of the Commission on Warming and Ventilation, there is related a number of experiments which reduce to demonstration the fact of the importance of the panes being large sheets of plate-glass, and of making the sashes double, with an interval of from 6 inches to 12 inches between each.

† It may be doubted whether even all this will be enough. I can state, from long-continued and frequent observation of some six-bed wards with one window opposite the door and a large opening over the door, that when the window is open at the top to the extent of two inches, it is impossible to discover, at any time, an appreciable current in the middle of the room.



DESIGN FOR A SMALL MILITARY HOSPITAL.

some of them might be curtailed without great disadvantage.

The central hall would be lighted and ventilated by a glass roof, and also by two large side windows. It would be available for use as a chapel, and also, if desired, as a dining-room for convalescents. It may seem desirable to make this central glass hall somewhat larger, and also to place a short interval of glass between the two small wards and the large ward which is beyond them.

One skilled sick orderly being sufficient for the service of fourteen patients in a regimental hospital, each orderlies' room need not accommodate more than two. The unskilled orderlies, the hewers of wood and drawers of water, would live in barracks, and march to and from their hospital duty just as they would to or from any other duty. At the same time it is very desirable to have eight or nine skilled orderlies in a regimental hospital of such a construction as this, because a pressure of cases may, at times, require that two of them should be night-watchers, and two out of eight would give three "nights in bed" for all. At ordinary times, one night-watcher would be sufficient, which would give five nights in bed to a total number of six, and seven to a total number of eight.

It may be thought advisable that the hospital sergeant should live under the hospital roof; but there is no reason why his wife and large family should be there—and hospital sergeants always have a large family. Accordingly his quarters are external, and I think that that and the other arrangements of the external buildings will be generally approved.

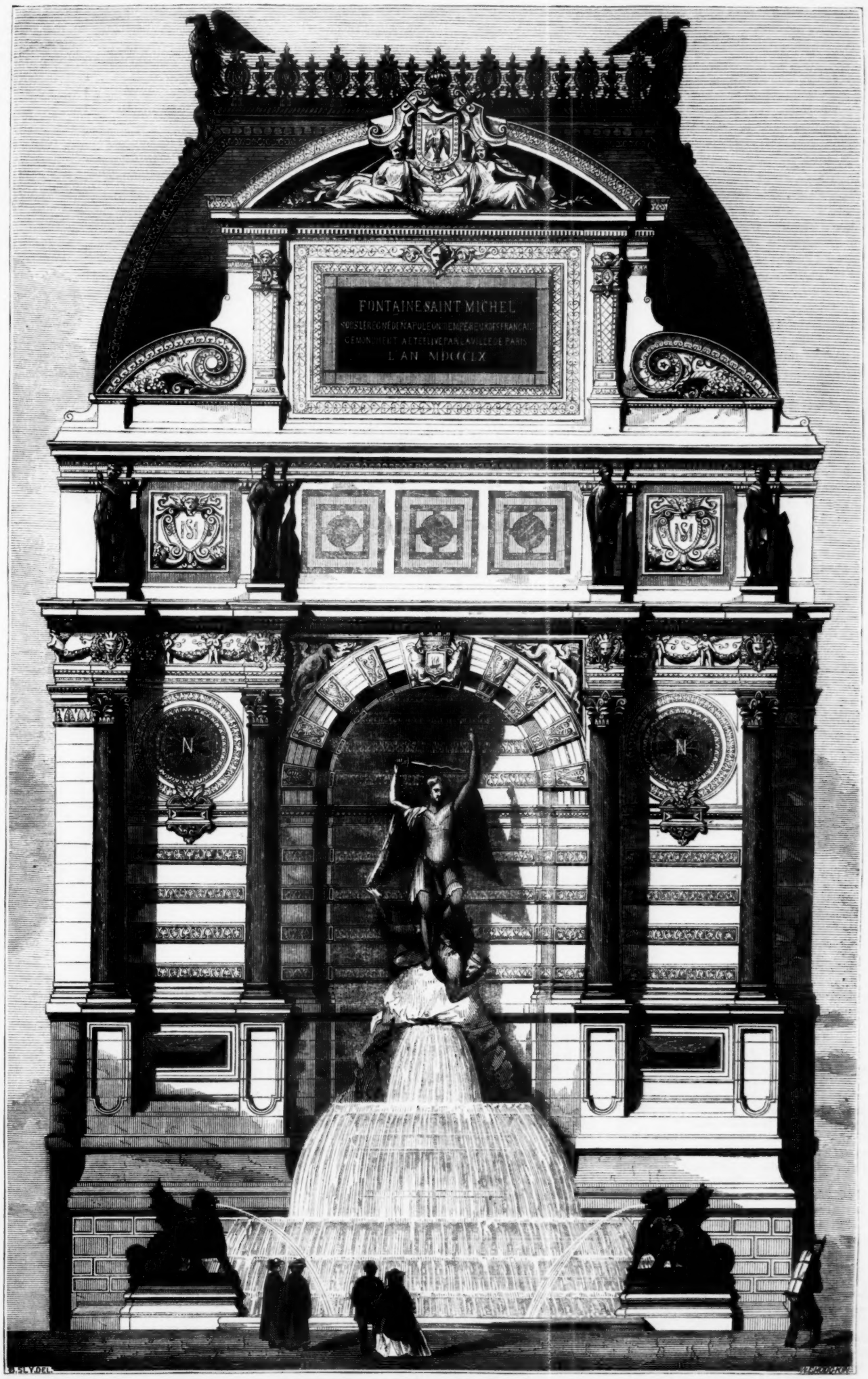
It may be objected that the position of the respective ward conveniences, with their necessary ventilated lobby, is such as would spoil the general look of the building, and that these places are made too prominent. But in planning for the accommodation of soldiers, it is a good rule to put well in front those places which require most constant attention and supervision. Miss Nightingale very pertinently remarks,—"As an invariable hospital rule, rather more in military hospitals than elsewhere, publicity may be considered as the best police and the best protection."

A competent person has been so good as to make a rough calculation of the probable cost of such a building as this, and he estimates that it should be possible to build it for something decidedly less than 100*l.* per bed, exclusive of cost of site. It appears, by the army estimates for the current year, that the projected hospital for Woolwich, which will be a series of regimental hospitals conglomerated on the principle of *congregating* sick—a plan which should have the advantage of comparative cheapness, if none other—is to cost 120,000*l.* for 650 beds, or 184*l.* per bed, inclusive of cost of site. As the ground purchased for the site is a piece of waste land, with a wet clay soil, on which no one would ever dream of building a private dwelling-house, though it is in "a desirable villa neighbourhood," it may be assumed that the sum paid for it has made no great inroad on the 120,000*l.*

In deprecation of criticism of minor details, let me remind the professional reader that this is a project by an amateur. As to all other points, what it asks for is criticism, and the more searching and trenchant the criticism is, the better will the author be pleased, and the more fully will his purpose have been realized.

REFERENCES.

A.—Hall with glass roof.
B B.—Wards (one in outline).
C C.—Orderlies' rooms.
D D.—Bath-rooms.
E E.—Scullories and Pantry.
F F.—Water-closets.
G.—External Water-closets.
H.—Mortuary.
I.—Ablution-room for Admissions.
J.—Issuing Lobby for Diets.
K.—Kitchen.
L.—Orderlies' Day-room.
M.—Steward's Store.
N.—Dispensary.
O.—Surgery.
P.—Waiting-room.
Q.—Purveyor's Store.
R.—Pack-store.
S.—Guard-room.
T.—Guard-ward.
U.—For Temporary Custody of Maniacs.
V.—Hospital Sergeant.
W.—Dispenser.
X.—Observation-room.


FONTAINE SAINT MICHEL
SOUS LE REGNE DE NAPOLEON III EMPEREUR DES FRANCAIS
CE MONUMENT A ETE ELEVE PAR LA VILLE DE PARIS
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THE "FONTAINE SAINT MICHEL," PARIS.——M. DAVIOUD, ARCHITECT.

THE FOUNTAIN OF ST. MICHAEL, PARIS.

MIGHTY changes are taking place in Paris: miles of streets have been cleared away; other streets formed: fountains are erected, palaces finished, and statues everywhere set up. Money is not thought of: it is applied with stintless hand. The result is a beautiful city and a dear one. The proceeding has its admirable side—most admirable: but it has also its fear-exciting side, as the owners of house property, who, as we stated many months ago, are raising rents inordinately, may one day find out to their cost.

The Fountain of St. Michael, of which we give an engraving in our present number, is placed at the fork of the new Boulevart Sebastopol, facing the bridge of St. Michael. Its height is not less than 26 mètres, and its width 15 mètres. It was commenced in the month of June, 1858, and was inaugurated on the 15th of August last. It is raised upon vaulted cellars, constructed of rubble work and Portland cement. The basement, 6m. 40c. high to the base of the columns, is formed of Saint Yllie stone (Jura): the rest of the monument is of the De Méry stone. The four stages for the water-fall and the basin are executed in Saint Yllie stone: the border of the lower basin is raised only 30 centimètres above the level of the footpaths. At each extremity of the lowest stage are two pedestals, supporting apocalyptic animals vanquished by angels. In the basement, two pedestals on each side serve to support columns. The panel between each pair is ornamented with a tablet of grey Breccia marble, cut in facets. In the niche, and above the topmost stage, is a group of St. Michael subduing Satan. This group is 5m. 50c. high: it is supported by a rock of stone from Soignies (Belgium). This rock, from which the water flows, covers a cast-iron reservoir, that serves for support to the group, and supplies the fountain at the rate of 23 litres a second. The spandrils of the niche are ornamented with chimeræ: the arms of the town of Paris, with the legend, "*Fluctuat nec mergitur*," are sculptured upon the key-stone. On each side of the niche are two columns, of the red marble of Languedoc, having their bases and capitals of white veined marble. The entire height of the columns is 6m. 20c. In the intervening panel is a sort of buckler in bronze, bearing upon a field of bees an N., surmounted by an imperial crown, and surrounded with sceptres and branches of oak and laurel. The cartouche below is ornamented with the head of an angel and a plaque of *lapis lazuli*.

The frieze of the entablature is decorated with small angels, bearing garlands of flowers: an escutcheon, with a lion's head upon it, is placed above each column. Over the columns, and in the following order, commencing on the left-hand side, are placed four statues, representing the cardinal virtues, Prudence, Strength, Justice, and Temperance: their height is three mètres, including the plinth.

The centre of the attic is ornamented with designs in different coloured marbles: the two lateral portions bear a cartouche, enclosing the cypher of Saint Michael, surrounded by the collar of the order of that name created by Louis XI. in 1469. The square frame outside the cartouche is of coloured marble.

The pediment is decorated with a tablet of sea-green marble, bearing the following inscription:—

"Fountain of Saint Michael. Under the reign of Napoleon the Third, Emperor of the French, this monument has been raised by the City of Paris, in the year 1860."

On each side of this tablet is placed a pilaster, bearing the medallion of Saint Michael and the cordon recalling the military order instituted by Louis XI.

Two large volutes, ornamented with horns of plenty, terminate the sides of the attic, and do not demand our admiration. The whole is surmounted by an escutcheon, bearing the arms of the empire, supported by two allegorical figures—Power and Moderation. The covering is of slate: the cresting, the ridges, and the eagles, which are at the angles, are formed in hammered lead. The situation of the fountain is unique: it can be seen at a distance of 400 mètres, the eye traversing the entire breadth of the city. Unfortunately its north-east aspect will scarcely ever admit of its details being lighted up by the sun's rays. This situation explains the necessity under which the architect felt himself of making use of various coloured materials in the construction of the monument so as to supply, as it were, artificial light and shade.

The works of St. Michael's fountain have been executed by the Municipal Service of Promenades and Plantations of the city of Paris in charge of the Bois de Boulogne, and of the squares and the decoration of public places, under the direction of M. Alphand, engineer-in-chief. To the same service we owe the restoration and removal of the fountains of the Châtelet and of the Innocents.

The monument with which we are now more particularly occupied has been executed from the designs of M. Davioud, architect-in-chief to this service, who has already contributed to the embellishment of the capital. Messrs. Flamant & Simonet, inspectors of works, have seconded M. Davioud.

The group of St. Michael subduing Satan is due to the talent of M. Duret, member of the Institute. This figure was cast in bronze by M. Victor Thiébault, in the space of three months, and with complete success. The bronze, contrary to the usual custom, is of a light colour, to harmonize with the surrounding stone. A darker colour is given to the demon. M. Auguste Debay executed the figures of the pediment.

The statues of Prudence, Strength, Justice, and Temperance, proceed from Messrs. Barre, Guillaume, Elias Robert, and Gumery. They were cast in bronze by Messrs. Eck & Durand, in whose studios the groups for the lower basin, by M. Jacquemart, are in course of execution. The sculptured ornaments have been executed by Messrs. Biés & Liénard. The general execution of the works was entrusted to Messrs. Moutjoie & Ducros; and M. Séguin superintended the marble works. The interior mechanism of the fountain was executed by M. Lalo, inspector of waters, under the direction of M. Bellegrand, engineer-in-chief.

The Paris journal, *L'Illustration*, has some just observations on the fountain and its accessories, which may be usefully condensed; and with these we will close our account:—

The St. Yllie stone (Jura), whose yellowish gray colour contributes variety to this grand façade, is seen in conjunction with the white stone of which the rest of it is composed. The red colour of the Languedoc marble shafts of the columns forms at present a somewhat harsh contrast with this stone; but time will, doubtless, harmonize that effect. Perhaps, also, when the back part has blackened a little, it will restore to the white marble of the capitals of the columns their due predominance, which at present they do not possess. The bronze of the statues is of an harmonious tone.

The talent displayed by the architect of the fountain of St. Michael, and by the artists who have aided him in its execution, will receive well-deserved praise; nevertheless there are some details to which criticism may justly take exception: it is upon the general effect, and upon the conditions themselves of the programme, that we think it useful to make some observations; because in our opinion there is therein a grave error arising out of the vexatious necessity, imposed upon the artist, of elevating his monumental façade against a simple domestic abode. Again, if this house had been rectangular, there would have been a point from which the façade of the fountain alone could have been seen without the return lines of the house thrusting themselves into view. But, unfortunately, this is not the case. The house to which the fountain is attached is built with an oblique front; so that it is impossible to escape from the odious perspective of shop-windows and the casements of the various stories, which stretch themselves out behind this richly inlaid face, with the most impertinent agreement in height, that establishes, in spite of every effort at disguise, a melancholy solidarity between the work of the artist and the construction of the builder. Notwithstanding the talent which the elevation exhibits, one feels that the architect was not free to choose his proportions according to his own inclination. The elegance of style and the richness of ornamentation do not prevent the spectator from seeing the evident effort made to give the design sufficient elevation, in order to mask some portion of the roof of the house. It is in vain that the ornamental cresting and the leaden eagles placed at the angles form a magnificent crown to the façade: this lacework ends on each side where the roof begins; and, behind it, the eye encounters the vulgar details of dormer-windows and chimneys. The system of placing fountains against private houses, of which there are numerous examples in Paris, is admissible for monuments of small proportions; but it seems to us essentially wrong, in every respect, when the monument to be erected is of large development and grand style.

We must also insist upon another point, too much neglected in the greater number of monuments of our day. We speak of unity and fitness. It seems to us these are qualities of which the age is too little careful. The fault, it must be admitted, is not always due to the artists, who are compelled to carry out their instructions. We are ignorant if such were the case in the present instance with regard to the choice of subject; but, standing before the fountain of St. Michael, one naturally asks oneself by what peculiar train of thought any relation could have been found between a group of the Archangel, the figures of Prudence, Strength, Justice, and Temperance, vanquished chimeræ, the enwreathed Cupids of the frieze, the crowning eagles, escutcheons bearing the saint's cypher, bucklers with the imperial cypher, the arms of France in the pediment, and those of Paris on the key of the large arch? What idea can we gather from this biblical, mythologic, allegoric, symbolic, municipal mixture? The answer is difficult and dubious. Some persons may see therein a distinct allusion to contemporary politics; but it appears there is nothing of the sort intended; and, according to the description which has been issued, the idea sought to be expressed is the Christian one of 'The triumph of good over evil.' So be it!

Although we may be running the risk of exposing ourselves to ridicule, by avowing a remnant of tender affection for the superannuated fabulous deities which our sceptical era has banished by force of contempt, we still think that for ornamentation of a monumental fountain (when no one of course dreams of consecrating it to the image of any one of the great men who have rendered France illustrious), naiads, tritons, dolphins, nay even the old classic urns, are still the most graceful, as well as the most natural subjects, notwithstanding their insignificance. These poetic creations adjust themselves the most readily to the necessities of the case; and, if they have the fault of being mythological, they possess at least the great advantage of logically belonging to a subject wherein, after all, it is the *water* alone which is the pretext for the arrangement.

CHURCH-BUILDING NEWS.

Hanworth.—The parish church was re-opened on the 31st ult., after having undergone a restoration of the interior. The seats are all open and uniform, and are plainly finished in English oak. The contractor was Mr. William Chapman, of Hanworth. Wood-carver, Mr. Daynes, of Norwich. The entire cost of the alterations has been about 300*l*.

Thurston.—The foundation stone of the new church of Thurston has been laid. The new structure will exactly follow the dimensions of the old one which recently fell, except that the tower will be 2 feet wider each way. It will consist, as before, of a nave and two aisles with five arches, measuring inside 80 feet by 42 (exclusive of the chancel, which remains); height of nave, 34 feet; of the aisles, 24 feet; tower, 12 feet square, height, 70 feet. A bed of concrete, 6 feet deep, is laid under the whole area of the tower, and 5 feet under the walls of the church. The tower has two square buttresses at each angle, instead of the former angle buttress: above the plinth will be a course of quatrefoils, and the whole of the openings and decorations of the tower, which in the old structure were very inferior, will be in keeping with the body of the new church. The windows of the porch will show four recesses of compartments within but only two without, in agreement with the original form. The materials of the walls will be flint and rubble, with Ancaster and Barnack stone dressings, such of the old Barnack stone as remains sound being used again, including the three pillars of the north aisle, which are left standing for the present, but will be rebuilt on proper foundations, all the clunch being rejected. The woodwork fittings, including doors, pulpit, seats, &c., will be of oak. There will be a row of free benches on each side, as well as at the west end of the church. All the sittings will be open benches, those in the nave having poppy-head ends. The work has been carried above the height of the plinth nearly all round, by Mr. Farrow, under Mr. Bonner's supervision.

Ditton.—The parish church has been under restoration. The work has chiefly been confined to the interior of the edifice, but it is hoped that before long the repair of the exterior may also be accomplished. On the north side a vestry has been added, and two new windows on the south side. A new chancel arch has also been erected, and the church entirely re-seated, the old pews being substituted by open benches, and the accommodation proportionally increased. All the walls have been re-plastered, and the timbers of the roof, which had been hidden with plaster and

whitewash, have been laid bare. New pulpit and reading-desk have likewise been provided, and other alterations and improvements made. Mr. Scott was the architect, and the work has been executed by Mr. Ephraim Wallis, of Maidstone, and Mr. Church, of Larkfield. During the progress of the work the remains of an old mural painting, consisting of a portion of the figure of a man, was discovered, and has been left exposed.

Maidstone.—It having been found that the Baptist chapel in King-street was in an unsafe condition, and in many respects inconvenient, it was determined to erect a more commodious building on the same site. The foundation stone of the intended new church has been laid. The church will be a large structure. The architects are Messrs. Peck & Stephens, and the builders, Messrs. Sutton, Walter, & Goodwin.

Heathfield (Sussex).—On the 8th inst., the spire of the parish church was brought to the upright position, which it is supposed, by some architects and others, never to have occupied since it was erected, some 500 years ago. This critical operation was an important step to the restoration of the church, which is now in progress. Ten years ago the north aisle was entirely rebuilt, and the roof of the nave repaired, the piers and arches renovated, and the north side of the church reseated, at an expense of about 800*l.* Four years afterwards the chancel was restored, at a cost of about 600*l.* The tower and spire, and the entire south side of the church, still remained to be repaired, the spire and the chapel, especially, being in a dangerous condition. These repairs were estimated to cost about 900*l.* Funds were collected by private subscription to half the amount required, and the two most important portions of the work were undertaken, viz., the rebuilding of the chapel and the repair of the spire and tower, and these are now progressing, while the committee are endeavouring to raise the remainder of the funds required to complete the entire restoration. The bringing of the spire to the perpendicular, effected under the superintendence of Mr. John Billing, of Westminster, the architect, was an operation which excited a lively interest in the parish, mingled with some anxiety as to the possible danger of a downfall. The divergence from the perpendicular of the apex of the spire (which is about 50 feet in height) was 2 feet 3 inches. To rectify this it was found necessary to raise the eaves of the south side 5 inches, and to depress those of the north side to the same extent. The spire was supported on four powerful screw-jacks, and the masonry was then carefully removed from beneath the five resting points on the north side of the centre beam, and a new bed made to receive the timbers when they should be lowered. The two jacks on the south side were screwed upwards, and the two on the north side were lowered simultaneously, the spire turning upon the axis of a single horizontal beam. No sound of creaking was heard among the network of timber. The moment the timbers came to their new leanings, and the spire was upright, two flags were run out from the top story of the framework, and a volley of musketry was fired from the tower walls. The tower and spire rise 120 feet from the ground, and show for many miles.

Burbage (near Buxton).—The foundation stone of a new church has been laid at Burbage, which is about one mile from Buxton. The Duke of Devonshire gave a site, on the Macclesfield-road, and 350*l.* Other subscriptions now amount to upwards of 2,600*l.* The estimated cost of the new church is 2,600*l.*, including a peal of bells; but the contractor's estimate is 2,080*l.* The church is expected to be finished in June next. Its style of architecture will be Norman, and it will have a tower 52 feet high. It will have a nave, two aisles, and a chancel, and will be erected of freestone dressing, from a stone quarry at Reve-edge, in the neighbourhood. There will be 400 sittings, the seats being open stalls. The roof will be open, in grained oak.

Congleton.—The new church of St. Stephen, erected on a plot of ground in Moore-lane, Congleton, has been consecrated. The building stands about midway between Congleton and Buglawton, occupying, with the burial-ground surrounding it, 1a. 15p., an area of half an acre being reserved as a site for a parsonage-house. The church consists of an apsidal chancel, with nave and north and south aisles, having the vestry open to the church, with the heating chamber under on the north side of the chancel, and a chapel or organ-chamber on the south side of same. There is a southern porch and a western entrance. The total length of the church exceeds 100 feet: it is about 49 feet wide, and holds 600 persons. A tower is contemplated at a future time; but at present the single bell is carried in a turret over the chancel arch. The style is Early Third Pointed, of the latter part of thirteenth century. The expenditure on the edifice has been about 3,000*l.* The chancel is decorated with painted glass, the floor laid with tiles. The seats and fittings are of oak. The chancel is parted off with wrought-iron screens. The whole of the seats in the nave are open, of pitch pine. The passages beyond the chancel are laid with plain tiles, made by Messrs. Garrett, of Burslem, who have also supplied the roof tiles and patent ventilating tiles for the ridges. The roofs are panelled, with the main timbers exposed, and a series of ornamentation is carried throughout the church by the introduction of floral and geometric drawing. All the woodwork, other than oak, is stained and varnished, and the oak is bees'-wax polished. A Caen stone font stands at the entrance. All the windows on the south side and in the clerestory are filled in with patterns in different shades of Hartley's patent glass. The interior ashlar work of the church is in Bath stone, with Alton and Forst red sandstone introduced alternately into the arches of the nave. Derbyshire marbles are used in the piers of the chancel arch. The walling stone is from the locality, and the exterior ashlar of Staffordshire stone. The church is heated by hot water. The works have been carried out from the plans, and under the direction, of Mr. Joseph Clarke, of London, by Mr. Samuel Faram, of Odd Rode, builder. The chancel has three windows filled with stained glass by Messrs. Edmundson & Son, of Manchester. The subjects are designed with reference to the memorial, those in the centre window being taken from the New Testament, and those in the side windows from the Old. In the middle window are;—The aged Simeon with the infant Jesus in his arms, and the stoning of St. Stephen. In the north window are Jacob blessing the children of Joseph, and Joshua before his death addressing the tribes. In the south window are Job and Daniel.

Stockport.—St. Thomas's Church is being painted and decorated by artists from the establishment of Mr. Crace. The work is now approaching towards completion. Mr. Winship is the superintendent of the work. The ceiling is coloured an aërial blue, with maroon line; the margin two tints of vellum colour, with maroon and drab lines. The pendants on the ceiling are in imitation of bronze and gold, and the cornice in vellum colour, relieved with deep maroon, blue, bronze, and gilding. The gallery ceiling is coloured two tints of buff, with drab and maroon lines; and the walls are a subdued green, ornamented with maroon lines and corners, the columns being of stone colour, and the caps a soft white. The gallery fronts are of vellum tint, relieved with drab and maroon lines and ornaments, and a portion is gilt. The pilasters supporting the galleries are ornamented and embellished to correspond. The pews are a cinnamon colour, painted and varnished. At the communion end the finished portion is embellished with blue, green, and maroon lines.

SCHOOL-BUILDING NEWS.

Chatham.—Another new National School has been opened in the Military-road, making the fourth new school for the children of the poorer classes built and opened at Chatham within a comparatively short period. The building in question has been erected at a cost of 1,646*l.*, of which sum 250*l.* were given by the Lords of the Admiralty, and 740*l.* by the Committee of Council on Education, and other Government departments, the remaining 656*l.* having been obtained by private subscriptions, raised chiefly through the exertions of the Rev. S. Arnott, vicar of the adjoining church of St. Mary. The school has been erected by Mr. Wilkins, and is of Kentish rag with brick and freestone dressings: it will accommodate infants as well as boys and girls of more advanced age.

Husbands Bosworth.—In February, 1858, a new parochial school was opened in this village. At the end farthest from the master's residence, another building, some 30 feet by 20 feet, has just been erected, in the same style as the first, which it crosses at right angles. The rooms communicate with each other by means of large double sliding partition-doors, which have been lined with felt. The school is warmed by the Hyde stove. The cost of school and master's house was about 800*l.*, and the newly-erected infant-school about 350*l.* Both were erected from the designs and under the superintendence of Mr. E. F. Law, of Northampton, architect. The buildings are of red brick, with white brick quoins, and black and white brick arches, black brick plinths and chimney-caps, and black brick diapered work between the windows and in the gables. The walls on the inside are finished and coloured on the bricks. The roofs are open, with Gothic ribs resting on corbels, and the whole stained and varnished. The building is situated on the village green.

Salisbury.—St. Edmund's new schools, erected on the east side of St. Edmund's churchyard, for the education of the children of the poor in this large parish, have been formally opened by the bishop of the diocese. The buildings, which are in the Decorated style of architecture, were designed by Mr. H. Goodyer, and the works have been carried out by Mr. Futcher, of Fisherton, builder. The total cost of the erection is about 4,500*l.* The accommodation afforded is for 500 children, namely, 150 girls, 150 boys, and 200 infants, besides a residence for the master. The central portion of the edifice is occupied by the girls and infants' schools, the boys' department being on the left, and the master's house on the right. The infants' room, which is on the ground-floor and underneath the girls', is 50 feet long by 20 feet wide, with a gallery, 18 feet by 14 feet, capable of holding 100 children. The dimensions of the girls' department are 50 feet by 20 feet, with two class-rooms, one 14 feet by 20 feet, and the other 18 feet by 14 feet. The boys' room is in the shape of the letter L, the portion at the end being 20 feet long, having a class-room 14 feet by 18 feet, whilst the room itself is 50 feet by 18 feet. The roof of this apartment formerly belonged to an old edifice that stood on the site of the new Salisbury Market-house, and is supposed to be of the fourteenth century. It was presented to the building committee by the directors of the Market-house, and has been restored at the expense of Mr. Charles Radcliffe. Each room is lighted with numerous windows.

Birmingham.—Tenders are invited from a limited number of contractors for the building of St. Jude's National Schools, class-rooms, teacher's residence, &c. The schools will accommodate upwards of 200 children. The Council on Education have granted 55*l.* towards the erection of these buildings, so long wanted in this densely-inhabited locality. The architect is Mr. J. L. Pedley, of Southampton.

MODERN ILLUMINATION.

THE art of illumination is being revived, and is more practised and appreciated than might be expected. It is urged that "it is at once disciplinary and delightful, and tends, even as an accomplishment, to strengthen those qualities of patience, thoughtfulness, and delicacy, which shed so salutary an influence upon our daily life."

We have before us the outlines of the Beatitudes, for illuminating, for which prizes were awarded by a society terming itself the Illuminating Art-Union of London,*—a great mistake, this title, by the way, as it looks like pilfering the good name of another. The outlines are designed by Madame Citerio, Mr. Edward Offor, and the Hon. Louisa Tenison, and may be had partially coloured, so that they may be finished after the pattern by the learner, a very good arrangement. The prizes were awarded by Messrs. Owen Jones and Noel Humphreys. The arrangement of the colours, probably, in No. 1, overcame the objection that might be taken to the style of the outline.

A second edition has been issued of the "Manual of Illumination on Paper and Vellum," by J. W. Bradley, B.A., and T. Goodwin, B.A.,† which conveys a considerable amount of information, evidently the result of some experience. It contains, too, twelve lithographic illustrations.

MORTAR IN MARYLEBONE.

THE monthly report on the health and climate of St. Marylebone during August, 1860, by Dr. R. D. Thomson, F.R.S., the medical officer of health for the parish, shows a very satisfactory state of matters as regards health and sickness, but in a certain measure attributable to the moderation of the heat of summer during the late rainy season. The mortality for the month of August was 258, or sixteen under the mean of four years. There were 4,462 cases of sickness compared with 5,091 and 6,306 cases in the two previous years respectively. These statistics, however, only show the more clearly how much life and health depend on the absence

* Gambart; Rowney & Co.; D. Laurent de Lara, Torrington-square.

† Winsor & Newton, Rathbone-place. 1860.

of those noxious effluvia which the heats of summer so generally raise up into a state of injurious activity, wherever the source of them exists. In course of his report the medical officer says,—"My attention has frequently been called to, I trust, an almost obsolete practice indulged in by some builders, of mixing up putrid slop from the streets with their mortar, instead of using sand, which has a chemical relation to the lime. A case of this kind having been reported to me by the inspectors at Hamilton-terrace, I found the slop used, to consist of putrid organic matter, 8·72; water, 36·6; and inorganic matter, 54·68. Being of opinion that the use of such a mixture in plastering the interior of a house is not likely to be promotive of health, while it undoubtedly produces an inferior binding material, I requested the builder and the architect to discontinue its use; but not in time to prevent the fall of an arch, and the injury of three men engaged in the construction of the building. The inspectors, who were present soon after the occurrence, are of opinion that the accident was partly due to the mortar, while the district surveyor reports to me that 'the falling of the arch was from improperly striking the centre, and not from the use of bad material.'"

SOCIAL SCIENCE AND THE STEAM ENGINE.

IT may not appear at first sight that there is any very intimate relation existing between social and mechanical sciences, for the former is treated at the present time in a manner very similar to that of education some thirty years since, and considered to be entirely a question of *the brain*. It was then thought that the only requisite to bring youth to the most perfect state of maturity was a head full of wisdom and theoretical knowledge; *the great fact* being overlooked, that the *efficiency* of the functions of the brain is the basis of vigour and power, and that that efficiency is dependent on *physical* development and *physical* health. Experience demonstrated, in course of time, that the first stone of mental and moral culture is laid in physical culture, and that whatever superstructure of wisdom, experience, or knowledge, is erected on any other but this its natural basis, it is liable at any moment to tumble into a premature grave, with a decrepit and half-developed physical organization. What physical health is to the body, *industry* is to the social existence. It is the foundation stone of social peace and progress, national security, and international friendship; and no country has ever yet enjoyed constitutional freedom, or manifested any of the evidences and accompaniments of social health except by *its aid*. As industry, therefore, is greatly developed by the agency of the steam-engine, it follows that mechanical science is a great contributor to social progress, and has an important bearing on social science. One of your correspondents, in a recent number, called attention to the desirability of a more general diffusion of knowledge on this subject, and a closer investigation of those laws which govern the health of communities. This is very true; but it is equally true that, if any good result is to flow from discussion and investigation, it must be open to perfect freedom of speech. Social science is treated, at the present time, both by the public and the press generally, as a wealthy sensualist treats his doctor. The twinges and pains of his frame warn him of decaying health: he knows the reason and the remedy if he likes, but he dares not look it in the face; so he consults the doctor, and woe be to the doctor that states the truth. He is willing to be physicked, or to be subjected to any discipline that does not attack the real cause of his malady; and he expects, by some *presto-change!* system, to be able to keep in active operation all the agents of disease, and to enjoy all the fruits of health and ease. In investigating this subject, it should be borne in mind that nothing which is natural and legitimate fears to be looked at, and that any man who is imprudent enough to attack that which is sound and healthy, only brings injury on himself; therefore, if any good is to flow from discussion, the whole subject may be safely laid open; for that which will not bear the *test of light* is an *element of disease*, and that which will is one of health. It will be found, in this question, as in every other, that the *natural operation* of the element of social life leads to *health*, and that disease is but *the evidence* of some *impediment* to that operation; and that the remedy must be effected by removing the impediments, rather than by efforts to counteract their effects. Society is not honest in this matter. It wishes to maintain existing social conditions intact, and to discover some specific by which social health may be wrought out from the elements of social disease.

Social life is subject to *two* phases of development; and to one, and to one only, of these is every member and every class of the community contributing. The most insignificant event of *the every-day life of every individual* yields something either to the consolidation or to the decay of the social fabric: the result is only perceptible when viewed in the aggregate, when matured, for (as in the individual) every inspiration of the breath affects the health of the body. That effect is not perceptible except in like general results, and I am induced to thus trespass on your consideration solely from the conviction that this is a question of the utmost importance *at the present time* to the *commercial* interests of the country, and to all whose interests are identified with legitimate and constitutional progress; for the law of social development is *absolute*, and will accomplish its ends either with the concurrence of society by a yielding to its conditions, or else in defiance of society, by bringing into action the elements of disorder and rebellion. The following forcible warnings are not to be despised;—an *increasing population, increasing taxation, decreasing trade* (both home and export), and a gradual *rising in price* of the *staples of life and of industry*; and these have been the precedents to every previous period of industrial, commercial, social, and political disorder.

Society in its development is neither theoretical nor experimental, but is absolutely subject to simple and definite law; and the characteristics of health and of disease are in all ages and in all cases the same. The former are constitutional or responsible power, commercial freedom, and industrial independence, and prosperity: the latter are fictitious or irresponsible power, commercial dependence, and industrial poverty. No *political disorder* ever arises in any country where industry has a free and legitimate field for employment; and no tendency to foreign aggression or war is ever manifested when *capital* enterprise has a legitimate field for action and expansion in the pursuit of commerce. When, however, the industry of a country is fettered, its energy becomes the parent of rebellion; and when the sphere for the legitimate employment of capital is choked up, it finds an artificial outlet in foreign aggression.

I will now just call your attention to the two most prominent events in the social history of the country,—the Reform Bill, and the birth of Free Trade; and to the direct connection which exists between them and the two mechanical eras which were marked by the *steam-engine* becoming an agent of "*manufacture*" and "*transportation*." The passage of the Reform Bill was the consummation of social and political changes that had long since been effected in the condition of the community. Previous to the manufacturing era, the soil, its minerals, and its agricultural produce were the great elements of national wealth; and, as a natural consequence, political power was entirely in the hands of its possessors: when, however, steam came as an agent of manufacture, a rival element of national wealth was produced, and from it grew up a wealthy and powerful commercial interest; and, in spite of all the efforts of its opponents, by legislation, by war, and by national extravagance, nothing could check the growth of this interest, fed by the expansive power of the steam-engine. It grew, attained independence, and set the seal to that independence in the Reform Bill. At that time finality was accepted by both aggressors and defendants: time, however, which matures all things, brought forth another period of maturity for commercial and mechanical science (represented by the *locomotive*). This gave another stimulus to commerce: markets became more accessible, more numerous, and more absorbing: the advantages which resulted from cheap and efficient locomotion suggested to the commercial mind the desirability of Free Trade; and, as soon as the policy of protection was felt to press sorely on the interests of trade, the whole commercial community united for its destruction, and down it came. In both these cases (and in every other), on the one side, was found irresponsible power backing up commercial restriction; on the other, constitutional effort, the fruit of unity of commercial interest, struggling to give birth to its first-born—Free Trade. The *steam-engine* then, first, gave birth to a commercial community; secondly, gave it wealth and power; and thirdly, gave it a political recognition. In the second era of its progress it gave cheap and efficient locomotion, showed the advantages of freedom in commerce, and gave both unity and power for its accomplishment. As both these great events in the progress of our country towards its present state of maturity were preceded by a mechanical agent, so will be the next. I will on some future occasion draw your attention to the *third* (*and coming*) *era* in commercial progress, the evidences of its approach, its character, and prospective results. JOHN GILES.

LETTERS ON MARBLE: PAINT ON LEAD.

ONE of your correspondents asked lately for a good mode of colouring letters in mural marble tables: allow me to say I have tried black and red sealing-wax, dissolved in spirits of wine, with much success.

Can any of your readers inform me whether it is impracticable to paint lead? A country painter—I apprehend on the principle "sweets to the sweet"—tells me white lead to white lead ruins the lead, and that painting lead ruins it in three years. Is such the case? EBORACUM.

DRYING WET CROPS.

SIR,—Allow me a few lines with reference to the paragraph, that the different wet crops can be well housed in defiance of wet weather.

My object is to say that the idea is not new, as I can fully prove. I was managing a large brewery at Burton-on-Trent. There I had an occasion to superintend some haymaking. It was very wet weather, and the idea then occurred to me. Accordingly, I went with a man into the field, and procured half a truss of green wet grass direct from the swathe: we then placed it in a vessel which contained air, heated by steam, and I can assure you, sir, that that wet grass was rendered into hay in one hour, with an excellent colour and beautiful flavour. I could have done ten trusses at a time in the vessel, but I thought the half truss was sufficient to convey the idea. I have a specimen of the experiment now by me, which is four years old, and it is exceedingly good.

I think I may say, that I am the first person who made hay by drying grass artificially.

W. W. WYNNE.

THE STAGE.

The Adelphi Theatre.—It is a long time since a more legitimate success was achieved than that which has attended "The Colleen Bawn, or the Brides of Garryowen," a piece founded on Gerald Griffin's Irish novel, "The Collegians," by Mr. Dion Boucicault, and in which he plays very cleverly an Irish ne'er-do-weel Myles-na-Coppaleen. Miss Agnes Robertson as *Ely O'Connor* (the Colleen Bawn), and Miss Woolgar, as *Ann Chute* (the Colleen Ruadh), are both excellent; and Mrs. Billington, Mr. Edmund Falconer, and Mr. C. H. Stephenson, demand special mention. Indeed, the piece is altogether well played, and if we are not mistaken will serve to fill the Adelphi for many weeks to come. The scenery by Mr. Pitt and Mr. Thompson, although not yet even quite equal to the capabilities of the new stage, is very good and effective, especially the first scene, "The Lake of Killarney by Moonlight."

The management of the scene, "The Water Cave," wherein *Danny Man* attempts to drown the Colleen Bawn, and *Myles* rescues her, is remarkably good, and produces all the effect of reality.

The Olympic.—The "New Farce" here, as it is called, entitled, "Savage as a Bear," is a literal translation of the French vaudeville, "Un Tigre de Bengale," with omissions. Not a single incident, not a stray idea, is there in it which is not in the French original, if we except an absurd alteration at the end, which destroys the point of the French piece for the sake of strict propriety. So long as the public will permit managers to do this sort of thing,—so long as English writers have the hardihood to put their names to pieces with which they have had nothing to do,—which they have no more right to call theirs than Mary Smith has to call herself the author of "Telemachus," when she has done a few pages of it into halting English,—so long will our modern drama, in a literary point of view, remain the scoff of Europe. Unlike most pieces at the Olympic, the farce is very badly played, too, at least by the gentlemen. Those who saw the original acted by the Zouaves at the Princess's Theatre (half-amateur as they were), could scarcely sit to listen to the unnatural ravings of Mr. F. Robinson in the part of the jealous-pated husband. This gentleman, useful in Shaksperian plays at Sadler's Wells, is entirely out of his element in the parts he is now acting at the Olympic.

CUPS FOR PUBLIC DRINKING-FOUNTAINS.

As one of your constant readers, I beg to offer my individual thanks for your remarks from time to time upon drinking-fountains, in which I feel great interest. I am sensible of the prudence and justice of your observations in regard to the miserable taste generally displayed, and very often the only embellishment, "so to speak," is the donor's name, or some Scriptural quotation, both of which would be far more honoured in the breach than in the observance. Those at the entrance to the British Museum are admirable as regards fountain and cups; but it should be remembered that they are carefully guarded by day, and inaccessible at night, which other public drinking-fountains are not.* The same silvered cups in an exposed situation would be mutilated or stolen within twenty-four hours, and are, therefore, not applicable to such service generally.

I am sure you feel a deep interest for the public benefit on such matters; and, having taken infinite pains to find the best kind of drinking-cup, I hope you will kindly receive the result of my experience, and as kindly publish it. Common tin cups soon inherit a nasty look and a greasy feeling: tinned iron soon become rusty, and are withal heavy: enamelled iron chip become rusty, and in wear soon assume a dirty appearance, from people's thumbs and fingers, which is not easily removed. Cups of that description should be renewed once a week, or at furthest, once a fortnight, which is the extreme extent of their decent durability and wholesome appearance. Such cups, with chains, were tried at Kensington-gore very fairly for above two months last year, and the result was a very large amount of trouble, no perfect satisfaction, and considerable expense to replace what were stolen or damaged. The average expense for the whole period named rather exceeded 2s. 2d. a week. These various evils led to the adoption of earthenware cups, marked "Kensington Drinking-Fountain," for identity, which have been in use ever since: not one has been stolen. They always look clean and wholesome, create no trouble, and the breakage does not amount to 6d. a week. I take leave to send you one, that you may be able more confidently to refer the public to the consideration of the question if you approve, because I believe them to be the best possible for the service in all its bearings. Through the kindness of Sir Richard Mayne, the police take charge of a small store; and, when one is broken, another is substituted without difficulty. They are perfectly plain, because any rims, handles, or projection, would tend to breakage. They have no pretension, but utility, cleanliness, and economy, and the cost is 4s. per dozen. I feel sure you would confer a public benefit by making these facts known. You kindly inserted a letter of mine in your journal of the 17th September, 1859, when these cups were first put into use, and the subsequent experience respecting them may be interesting and useful. KENSINGTONIAN.

* The marble rim should have been made to slope inwardly in order to prevent drops from the cup, in drinking, from wetting the person, while obliged to stand close to it. Nor can we approve of the lion's head as a spout.—ED.

ILLUMINATING AND ELECTRIC CLOCKS

SIR,—A plan for illuminating clock hands without the entire dial being lit up was arranged in detail in 1857, with a view to its being applied to one or more of the Westminster clock dials; and it is one amongst several improvements to introduce which I have endeavoured to obtain the necessary control over the clock for some time past.

The experiments which I made with the plan in October, 1857, showed that an ordinary gas-light, at a moderate elevation, could be seen from a greater distance than the angular space on the dial permitted the time to be read off by the hands, and that an ordinary-sized gas-light on each hand would be sufficient for dials as large as the Westminster.

Your correspondent in the *Builder* of the 8th instant suggests the use of the electric light; but, as the experiments of 1857 showed that the distance at which the time could be read was limited by the amount of space on the dial, and not by the want of a more powerful light than gas, there would probably be no advantage in employing the electric light, sufficient to compensate for its uncertainty and extra cost.

As I may give a detailed account of the plan and experiments in a future number of the *Builder*, I need only add that three gas-lights were used,—one near the point of each hand, and one in the centre of the dial; and that different coloured glasses were placed before them, in order to distinguish the hands and centre from each other. E. T. LOSEBY.

SIR,—My plan for illuminating clocks, introduced to the public years ago through the *Builder*, is again taken up; and the old, old story is exemplified, that the public mind requires a great deal of hammering before any impression can be made upon it. The chief idea of my plan is, that *no hands are required*. When a person looks at a clock or watch, he simply examines the position of the *ends* of the hands. Instead of the enormous leverage required to turn long hands, such as are required in public clocks, which are also interfered with by the wind, my plan embraced two thin copper disks, with a circular hole in one portion of them. These disks are placed in front of a red band of glass for the hours, and a white band for the minutes, and the time would be shown by the relative position of the red and white circle, as seen at any part of the disks. The light being directed on the two disks instead of the whole face, as at present, the contour of the clock is shown by a band of white light, with projections for the quarters.

For watches, merely feeling the position of the two holes at night would answer the purposes of a repeater. W. H. BUTTERFIELD.

*** I explained my plan to one of the first clock-makers in London, who candidly stated that three patents which he now holds would be rendered valueless if my plan were adopted. I am not a clock-maker, but I know enough of mechanics to be certain that much less power would be required to turn the disks than the lightest hands that could be made.

The suggestion of Mr. C. Dent, relative to the illumination of clock-dials, contained in the *Builder* of the 8th inst., may be seen carried out in a very beautiful and ingenious manner in the clock of the Musée of the town of Havre. There the great body of the dial remains dark, the hours and the hands only being illuminated. I have often wondered why the method so successfully carried out in Havre was not followed in other places. I regret that I am not able distinctly to describe the arrangements of this remarkable specimen of illuminated dial, but I believe every facility would be given by the guardians of the Museum, for examining it in detail. I hope that this hint may not be lost sight of by those interested in this branch of horology. NIGHT.

*** This clock was also referred to in our pages some years ago.

Time by Electricity.—The telegraph has already worked strange innovations; but electricity is as yet an infant, and has to be applied to purposes that science has not yet taken up. For instance, our public clocks—those silent perjurers,—cannot we do without them? they are ever misleading the Queen's lieges,—to-day slow, to-morrow fast, the next day stationary. What is there to prevent our having a central electrical, or rather galvanic, time-keeper, that should beat the pulses of the hours, and send the true arterial time along the railway lines through the city and over the country, with dials and honest fingers (but no clocks!), moving almost simultaneously from Land's End to John o'Groat's, "from Lynn to Melford Bay?"—GO-A-HEAD.

*** The electric clock is now an old invention, but has not come into use.

DRINKING FOUNTAINS.

SIR,—On the 11th inst., at twelve o'clock noon, we had presented to this parish (Spitalfields) a granite drinking-fountain, the gift of T. F. B., a gentleman well known for his liberality, &c. It has been erected by the Association formed for that purpose. Of course, as you are the well-known supporter of the cause, a much more defined account will be sent you. What I wish to call attention to is the shocking mess that the paving is in through the water being spilt after the fountain had been opened only twenty-four hours. There is a little grate, about 2½ inches by 2½ inches, let into the base, to carry off the water that is (at present) continually running over, for the outlets are stopped up in the basin. What can the parties know of such matters to finish it in such a way? It looks very much to be leaning towards Shoreditch—not quite upright. It seems a very great pity that good money should be spent on such bad work.

The fountain in Fleet-street, the *Duke's* one, is very bad from the same defect, causing a slop and puddle over the paving, in spite of all the staring description that is given of the liberal donor. What I would suggest is, that a proper grate be let into the stone paving, strong enough to bear rough usage. If the water should continue running through the winter, serious accidents must happen. This is not written to disparage the movement, but only the way in which the fountains are fixed. If the mode of construction is not altered, few will run the risk of wet feet for a cold draught of water.

A PARISHIONER.

A drinking-fountain of cast iron, comprising a female figure pouring water from a vase, with a white marble slab behind the figure, has been erected at Gravesend. It was executed by Mr. Hood, of Thames-street. The figure standing in the basin into which the water falls, an impression of feet-washing is conveyed, which can scarcely be intended.

ARCHITECTURAL EXAMINATIONS.

SIR,—The question of a voluntary or compulsory architectural examination is a subject which should be duly considered in all its applications; for, whilst the want of an examination has been felt generally, the means proposed for its introduction are calculated to offend practising architects generally, and sever their practical connection with the Institute. The report of the Northern Architectural Association expresses not only their own opinions, but the opinions also of a large section of the members of the Royal Institute. Our profession is simply in a similar position to that of the medical and legal professions, before examinations in these professions were compulsory, and their precedent must be followed by us. If unity in the architectural profession is to be maintained, it must be by granting diplomas to all established practising architects, and instituting a compulsory examination for all future architects: by these means support will be given by the profession generally in place of opposition, for I speak the opinion of many members of the Institute in stating that, as an architect of established practice, I would not consent to pass an examination, nor would I belong to the Institute, if it contained diploma and non-diploma men. Such a general severance would greatly injure the welfare and position of the Institute, if not form the nucleus for a rival and more liberal society.

A MEMBER OF THE INSTITUTE.

ARBITRATION LABOUR COUNCILS.

SIR,—It is by no means consistent with the vaunted supremacy of civilization in England, that the relations between the employers and the employed are in their present unsatisfactory condition, and that, between these two all-important interests, a state of petty civil war is from time to time raging. The Rev. Mr. Widdrington, who has endeavoured most benevolently to mediate between the weavers and their employers, at Coventry, proposes to create "a board of arbitration," composed of the employers and the employed. There would seem to be no better way of meeting the question than this, excepting that it would be incomparably better that the members of such a board, while holding the relative position of masters and servants, should be drawn from *other* trades or occupations, than that in which is the dispute as to the price of labour, the duration of work hours, &c. An equal number to be chosen as arbitrators to represent either class; the number to be a dozen on each side. Personal attendance to be urged upon them as very desirable; but, as their avocations will often render this inconvenient, in such cases voting by proxy might be allowed, but no question should be decided, unless a certain number [say half] were present of each class of representatives. To give a *prestige* to the character of the proposed councils or boards, and invest their decisions with that air of responsible importance they should possess in the commercial world, the representatives of either class should enjoy a *minimum* amount of income. Those on the employers' side to have say [as a rough approximation], *at least* 400*l.* per annum, while those representing the employed should be receiving [either in the form of wages or otherwise], a sum of *at least* 100*l.* per annum. By thus fixing the incomes of the arbitrators, and selecting men to a considerable extent removed from the possibility of collusion and bribery, who under less fortunate circumstances it is not improbable might be tempted to declare in favour of one or the other side, and yield to a pressure and without-door influence. The proposed boards being so novel a feature in our social organization, it will be necessary that their formation should be maturely considered, and the suggestions now offered may be regarded as an instalment towards their foundation.

The great point of difference between the masters and men in the recent Coventry strike was, that the masters proposed that there should be no fixed price, but that every master should be at liberty to make the best terms he can with his workers. The men protest against this, and have suffered much privation rather than submit. They do not object so much to a reduction of wages, but wish to know the extent of it, and where it is to end.

The only equitable and just principle in trade, and the prevention of that ruinous over-competition which now exists, is, that the price of every commodity or article [inclusive of labour as one of them], should be fixed from time to time by the consent of each trade as represented by their boards or councils of arbitration. Labourers should be *classified* according to their skill and proficiency as first, second, third class, &c., and a *minimum* rate of wages affixed to each one, with penalties or fines recoverable for any infraction of so wholesome a law. Till these things be done, injustice, misery, degradation, and discontent *must* continue to prevail in that important branch of our social economy—the relations of the employer and the employed. VERITAS PREVALEBIT.

FALL OF A ROOF.—The roof of a foundry, belonging to Messrs. Hamilton & Co., at Liverpool, fell recently, causing the death of one man, and seriously injuring several others.

Books Received.

Sussex Archæological Collections, relating to the History and Antiquities of the County. Published by the Sussex Archæological Society. Russell Smith, Soho-square, London. 1860.

THIS is a goodly volume of archæologically interesting and well-printed matter, illustrated, as usual, with engravings. There are papers on Uckfield, the Leper Hospital at Seaford, Hastings, and various other places in Sussex, and on its religious houses, its churches and chapels, monumental inscriptions, &c.

In the paper on Uckfield, by the Rev. Edward Turner, an account is given of the rocks at Buxted, in which there are curious chambers, with fireplaces, apparently of considerable age. Some additional specimens of Mediæval pottery, from Hastings, are figured in the volume, which is altogether a good one.

Miscellanea.

THE EXPLORATIONS AT MEMPHIS.—A communication from M. Marette, at Cairo, says:—"I write a few lines just to say that the explorations made at Memphis have come on the establishment of a founder in metals. The labourers have found the tools of the artizan, about forty pounds weight of silver in the rough, gold earrings, a score of silver coins hitherto unknown, and other objects, all destined for the crucible."

IMPROVEMENTS AT CLAPHAM.—On Friday, 14th inst., a large sale of houses was completed at Clapham, by Messrs. Pullen & Son (by order of the trustees under the will of the late Rev. J. Jeffreys), on whose estate they were. There were as many as forty houses disposed of, nearly all of a superior character, and which are to be taken down to clear the site for the intended new road from Clapham-rise to Larkhall-lane, through the Stockwell estate.

DESTRUCTIVE FIRE AT THE SAVOY CHAPEL ROYAL.—On Sunday morning last, between six and seven o'clock, a disastrous fire happened in the Savoy Chapel Royal, in Savoy-street, between the houses in the Strand, near Waterloo-bridge. Smoke was first seen issuing from the roof, and also through the windows, which had been left open. The fires had been lighted in the stove for warming the chapel, and overheating is said to have been the cause of the conflagration. The plate and wine having been removed to a place of safety, the fire continued to spread, and at length the organ, bellows, pipes, and appointments became involved in flame. From that valuable gift of George IV. the flames extended to the roof—one of very elaborate character, only recently restored. The damage done, before the fire was extinguished, by fire and water, was very considerable; and, judging from the external and internal appearance of the roof, there must be something like 20 square feet of the ceiling totally destroyed; to say nothing of the damage done by heat and smoke to the other parts, not only of the ceiling, but also the pews. The font is also much scorched and blistered, and one or two of the ancient carved wooden monuments have been completely burned off the wall at the eastern side of the organ.

AN ODD CARPENTER'S BILL.—The following "little bill" was lately delivered, which completely put the arithmetic of the debtor at fault:—

"Mr. Jones	Dr.		
	To Mr. Oldoak.	s.	d.
2 Rosewood	Boxes at 5s.	10	0
1 Wood	do	5	0
1 Wooden	do	5	0
		5	0"

According to this there appeared to be charged *four* boxes, each differently described, the total of which was less than the price of one. As only one box had been received, the bill, of course was disputed. The learned creditor, however, explained it, by the rule of thumb, as follows:—

	s.	d.
Two rosewood boxes, sent for approval, at 5s. each	10	0
One was accepted (or, in the language of the bill, *would* do.)		
One was returned (or *wouldn't* do), the price of which deducted	5	0
Left a balance due of	5	0

SET SQUARE.

*** Our correspondent is wrong in saying "lately delivered." The bill is one of some standing; but it may, nevertheless, serve to give a laugh to some of the rising generation.

BISHOPSGATE INFANT SCHOOLS.—On Friday the foundation stone of a building for infant and Sunday schools at the back of the church in Bishopsgate-street, in the neighbourhood of the churchyard, was laid. Mr. Hopgood, the treasurer of the funds collected for the erection of the schools, laid the foundation stone with the usual ceremonies. The length of the building, it is stated, will be 55 feet, and its width 25 feet, and it is calculated to cost about 900*l*.

UTILIZATION OF SEWAGE.—Mr. Richard Dover, of Baker-street, of whose system we have before now spoken, is again calling the attention of the parochial authorities of the metropolis to the expediency of utilizing and deodorizing all the sewage and waste water of the various districts throughout London. He proposes to establish in each of the parishes large filtering tanks, or reservoirs, in which the sewage will be received, and then and therein to treat it with an infusion of muriatic acid and sundry chemical salts, which have the effect, in little more than five minutes, of disengaging the solid sewage from the liquid, which latter comes out "in a purified and transparent stream, useful for flushing sewers, watering roads, and other purposes; while the residuum or solid matter precipitated furnishes, according to the attestation of eminent chemists, a guano or manure full of the most fertilizing ammoniacal matters, and valued at from 2*l*. to 2*l*. 12s. per ton." Mr. Dover estimates that the sewage of the entire metropolis may be deodorized and utilized in this way for a 3d. rate, instead of a 6d. rate as now proposed by the main drainage system, besides entirely preventing the pollution of the Thames. The vestry of St. Martin's-in-the-fields have, we understand, examined Mr. Dover's system, and "consider it to be of such great national sanitary importance, that the public welfare demands its immediate and more ample test."

ROAD AS WELL AS STREET TRAMWAYS.—Since our paragraph on highroad railways appeared on the 15th instant, a correspondent of the *Morning Post* has addressed that paper on the subject; recalling attention to the absurd manner in which Portland-place was covered with a thick coating of macadamized stones, and the folly and cruelty to animals having to drag a carriage through it; reurging, at the same time, the cheapest, easiest, safest remedy in laying down the long granite kerb-stones of the streets in a double line for the wheels of all carriages to run on, so long and successfully done in Friday-street, Cheapside; the Commercial-road; up Reigate-hill, &c.; not raised above the common level, or laid down through the metropolis alone, but from one end of the kingdom to the other, by which dust, dirt, noise, and almost draft, would be all abolished together. This work any unskilled labourer, disbanded militia-men, or discharged prisoner, could perform, while it afforded him bread and employment without end. Again, much of the lost traffic and pleasure of the public roads would return. Half the number of horses would suffice, and the produce of the land they consume (according to the late Sir J. Macadam "four acres per horse per annum,—enough for eight men") would be available for human food, and its enormous price would be diminished.

THE MULTIPLICATION OF PHOTOGRAPHS BY MACHINERY.—A highly interesting and singular paper was read before the American Photographic Society on 13th August, 1860, and is reported in the *Architects' Journal* of New York. By this paper it appears that twelve thousand photographs or stereographs an hour can now be produced from a single negative by means of condensed or focalized light and simple machinery worked by a crank! A sheet of ordinary paper, sensitized, was exhibited, containing 300 of these photographs. Mr. Charles Fontayne, of Cincinnati, Ohio, is the inventor of the process. The prepared or sensitized paper is simply passed, in a continuous sheet, before a negative, in a box, where condensed light is made to penetrate through the negative and impress its image upon the paper, which it does in ·03 of a second for each impression. The condensing lens is 7 inches in diameter. Thus, as it is said, "the illustrations for a book, having all the exquisite beauty and perfection of the photograph, may be turned out by the use of this machine with a rapidity wholly undreamed of either in plate-printing or in lithography." The cost of engraving, also, will of course be dispensed with. All sorts of drawings, too, may be thus multiplied, as well as actual objects photographed or stereographed, in cheap and endless profusion. The *Architects' Journal* publishes a print thus produced from a rough sketch by the ordinary ammonio-nitrate process.

COMPETITION FOR A NEW CHURCH, TORQUAY.—In a select competition for the above, nine designs were submitted to the committee, out of which that by Mr. A. W. Blomfield was unanimously selected.

BALLOON OR BIRD'S-EYE VIEW PHOTOGRAPHY.—At Providence, United States, a photographic sketch has been taken from a balloon. A Mr. Black ascended to the height of 1,200 feet, his balloon being held by a rope, while several negatives were taken. Mr. Black regards it as fully demonstrated that bird's-eye views may be taken in this way.

TRAMWAYS IN LONDON.—It is stated that the first street railway in the metropolis, of a similar kind to that successfully completed at Birkenhead, will be laid down in the course of a week or ten days, by way of experiment, along Victoria-street, Westminster, extending from the Broad Sanctuary, near the new Westminster Hotel, to the Vauxhall Bridge-road.

NETLEY ABBEY.—Local papers say the restoration of Netley Abbey, on the banks of Southampton Water, is progressing. During the past week the workmen engaged in restoring the abbey discovered the grave and tombstone of one of the monks. According to the inscription on the stone the name was John Wade, and he died in 1431. An inscription has also been discovered at the base of one of the columns in the chapel, from which it appears that the abbey was built in the reign of Henry III. What is really about to be done, and what aspect the place will take, we do not know; but at present we are told appearances are not very promising. The trees are being cut down, and the place is being trimmed with a vengeance.

DEATH OF MR. JOSEPH LOCKE, M.P.—We regret to hear of the death of Mr. Joseph Locke, the member for Honiton, which took place on Tuesday last at Moffat, Dumfriesshire. The deceased was born at Attercliffe, near Sheffield, in 1805, and was educated at Barnsley Grammar School, Yorkshire. Mr. Locke had represented the borough of Honiton in Parliament since 1847, and in politics was a Liberal, having voted in favour of the Ballot in 1853, against Church-rates in 1855, and in favour of Lord Derby's Reform Bill in 1859. His profession was that of a civil engineer, and he was extensively connected with railways, being a director of the Glasgow, Paisley, and Greenock Railway. He was a Fellow of the Royal Society, and President of the Institution of Civil Engineers. In 1845 he received the riband of the Legion of Honour from the late king, Louis Philippe. The deceased gentleman was in his 55th year. The death of one who was so well worthy to tread in the footsteps of Brunel and Stephenson, occurring as it has so soon after their own, is suggestive of painful reflection on the frail tenure on which the greatest genius holds its well-won honours, though it is rarely we have to record the decease of three such men within the brief period of twelve months.

THE CHARGE AGAINST ARCHITECTS OF ADDING TO TENDERS.—In the case of Pooley, the bankrupt contractor, who stated that 100*l*. had been added to a contract at the instance of the architects, some further explanation has taken place on an adjourned certificate meeting, before Mr. Commissioner Perry, at Liverpool. Mr. Evans, for the bankrupt, apologized for having so expressed himself as to leave it to be understood that he alluded to the customs and habits of architects generally. "God forbid that he should say so." Mr. Martin, on the part of the assignees, said, from investigations which he had made it appeared that there was a dispute between the trustees of the church and the architects with regard to some former plans, but the latter gentlemen had been advised very properly by Mr. Dodge, that, although they might have a claim upon their constituents in respect to plans, it was not what they ought to have done to add to the estimate for the purpose of getting payment for their claims. Therefore, under the circumstances, they had paid over to the estate the 100*l*. which was received from the bankrupt, and also paid to their constituents the 100*l*. added to the contract. The judge, in allusion to the same transaction, said,—the bankrupt, through his brother, had given in a contract for the building of a Presbyterian church at Birkenhead, the amount of which was 2,260*l*. The architects are said to have wished to be remunerated for previous plans made, and therefore requested that 100*l*. should be added to the estimate, which was accordingly done, and the tender was accepted. This arrangement was communicated to the bankrupt, who paid back part of the 100*l*. himself to the architects, and directed the other part to be paid.

THE LATE MR. HARTLEY'S SALARY.—The amount of the salary of the late Mr. Jesse Hartley, surveyor of the Liverpool Docks, was 3,500*l.* a year.

ST. PAUL'S CATHEDRAL.—A handsome stained glass window, according to the daily papers, has been presented to the Dean and Chapter of St. Paul's, who have resolved upon placing it in the nave of the Cathedral. It is to be hoped the authorities will admit nothing but what is excellent. Very little of the painted glass that is just now being manufactured is worth anything.

THE MEDITERRANEAN ELECTRIC CABLES.—A new line between Corfu and Otranto, in the heel of the Italian Peninsula, is abont to be laid down. The landing-place in the heel of Italy will be as near Otranto as possible. The submarine cable will be of the same size and description as that existing between Malta and Sicily, which it is said continues to work satisfactorily. The new cable is now being manufactured by Messrs. Glass, Elliot, & Co., the contractors for laying it down. The screw steamer *Berwick*, with the cable on board, may be expected in the Mediterranean early in October. Mr. Andrews, the company's engineer and superintendent, has made a proposal to the directors to construct a land line, for the purpose of connecting their two cables—that is to say, the Malta and Sicily cable and the Corfu and Otranto one—through the island of Sicily and Southern Italy, and to complete the communication by laying a short submarine cable across the Straits of Messina. This would render the telegraphic communication between Malta and Corfu instantaneous, and would greatly facilitate the transmission of intelligence between both islands and the United Kingdom. In conjunction with these lines, the French Government are making preparations for laying a new submarine cable between Toulon, Corsica, and Gaeta. Another plan proposed by Mr. Andrews, and approved by the directors, is to connect Corfu with Turkey, Greece, and the Levant, by means of a new submarine line between Corfu and Albania. If time and weather admit, attempts will be made this season to repair both the Cagliari and Corfu lines, which have been so long interrupted; and, in the event of these operations failing, as much cable as possible will be recovered.

THE GAOL OF NEWGATE.—Newgate was rebuilt after the Great Fire by Wren; and, when burnt in the Gordon Riots, by George Dance, R.A., who designed the building in 1720, his plan being objected to by Howard. While the work was progressing it was arrested by the rioters, who, breaking into the completed portion, liberated 300 prisoners, and left it in flames, so that the prison was not finished until 1782. The external architecture was thought suitable, from its gloomy grandeur and severity, to the proposed object; but the interior was so insufficient for classification or moral discipline, that within the last few years the whole plan has been changed, nothing of Dance's work remaining but the walls, which are remarkable for their thickness and solidity. Old Surgeons' Hall was close to Newgate, and convicts sentenced to be anatomized had this part of their doom performed there. While executions took place at Tyburn, corpses of murderers or traitors were placed under the operator's knife, as we see in Hogarth's ghastly picture of "The Idle Apprentice's Fate," and as really occurred in the case of Earl Ferrers, and a thousand other criminals. Our old chroniclers, and especially Maitland, speak with horror of the prison discipline. The unfortunate wretches in confinement were placed in dark dungeons, where the foul air engendered "the gaol distemper," which often led to a fearful mortality, for a dozen or more deaths not unfrequently happened in one day. In 1750, while the assize was going on, the pestilential effluvia infected the whole court—judges, barristers, witnesses, and spectators—and not less than sixty persons died in consequence. This led to the erection of a ventilating shaft, and ever after the court was strewn with sweet herbs, and bouquets were laid before the presiding judges, though at present an abundant supply of fresh air is a far better preventive. Lord George Gordon died here of gnol distemper, while in confinement for a libel on the Queen of France. After the riots, if not before, his reason became impaired. He affected to be a convert to Judaism, and was remarkable for his monstrous beard, which would have gained no notice in our modern streets, for beards are again fashionable, and our hirsute ancestors are more than rivalled. Formerly, debtors and criminals were huddled together in Newgate. Even while contagious fever raged, 800 human beings were packed in spaces which made healthy respiration impossible.—*City Press.*

MR. SCOTT RUSSELL AND THE "GREAT EASTERN."—The disputes between Mr. Scott Russell and the Great Ship Company, relating to the *Great Eastern*, have at length been decided by the arbitrators, Messrs. Hawkshaw, M'Lean, & Fowler, awarding him the sum of 18,000*l.*

PECKHAM CHURCH STRUCK BY LIGHTNING.—During a recent storm the tower of East Peckham church was struck by lightning. The vane on the top of the low spire was first struck. The lightning descended the south-west side of the spire, tearing off the shingle and wooden framework, with the quartering. It then crossed, internally, over all the bells, to the south-east corner of the tower, where it displaced some of the stonework and entered the wall itself, down which it passed in an irregular direction till it reached the level of the nave roof, a distance of about 15 feet, making in its passage several fissures in the internal face of the wall. At the point just above the junction of the ridge of the nave roof and the tower wall, a stone, measuring 14 inches square and 4½ thick, was forced out of the wall externally; and through this opening the lightning escaped. The stone must have been carried over the roof, as not a single slate was broken. It appears to have fallen first upon the iron shoot on the north side of the nave, which was shattered to pieces, and thence it descended to the ground.

SMOKE FROM GAS LIGHTS.—It is pretty generally imagined that the smoking of ceilings is occasioned by impurity in the gas, whereas, in this case, there is no connection between the deposition of soot and the quality of the gas. The evil arises either from the flame being raised so high that some of its forked points give out smoke, or more frequently from a careless mode of lighting. If, when lighting the lamps, the stop-cock be opened suddenly, and a burst of gas be permitted to escape before the match be applied to light it, then a strong puff follows the lighting of each burner, and a cloud of black smoke rises to the ceiling. This, in many houses and shops, is repeated daily, and the inevitable consequence is a blackened ceiling. In some well-regulated houses, the glasses are taken off and wiped every day, and before they are put on again the match is applied to the lip of the burner, and the stop-cock cautiously opened, so that no more gas escapes than is sufficient to make a ring of blue flame: the glasses being then put on quite straight, the stop-cocks are gently turned, until the flames stand at 3 inches high. When this is done, few chimney-glasses will be broken, and the ceilings will not be blackened for years.—*Sir John Robison.*

STATUES AND MONUMENTS.—It is intended to erect a statue of Sir Thomas Acland. The model is now completed. Mr. Stephens is the sculptor. ——A movement is set on foot to repair the stone of the Wallace Monument at Wallacestone, says the *Falkirk Herald*, and make such improvements as shall make it worthy of the hero to whose memory it was erected some fifty years ago. Upon the elevated spot where the stone already stands, it is supposed that the brave patriot took up his position and surveyed the two armies entrenched, previous to the first battle of Falkirk. The words "Hic stetit, 22nd July, 1298," are inscribed on the tablet. —— The Swedish monument in honour of Charles XII., at the spot where he fell, close to Fredrikshald, in Norway, is now completed, in the shape of a Gothic tower, with four gables, surmounted by an eight-cornered spire ending in a cross. The whole rests on three steps of stone, and is 34 feet high. This monument was uncovered by the King of Sweden and Norway on August 29.

RAILWAY PROGRESS IN SOUTH AUSTRALIA.—The Gawler and Kapunda Railway was nearly completed in June last. It is laid with the patent sleepers of an inverted iron-cup form, much used by Mr. Stephenson where the ballast is light, and chiefly in India and Egypt. The cost is above the average, but the sleeper is considered to be well adapted to light ballast, and durable. There are two intermediate stations between Gawler and Kapunda, namely, Roseworthy, 5½ miles; and Freeling, 12 miles from Gawler. The two more important bridges on the new line are,—one over the Gawler, which is already completed at a cost of about 7,000*l.*; and the other over the Light, which is yet in course of construction, and the estimated expense of which is about 6,000*l.* The entire cost of the Kapunda extension will be about 9,000*l.* per mile, including bridges and stations, but not including rolling stock. The Bill for the completion of the last 2½ miles was passed on the 1st of September, 1859, and the entire line, including the bridge over the Light, would, in all probability, be opened within twelve months of that date.

SHORT SEA PASSAGE BETWEEN ENGLAND AND IRELAND.—The directors of the Larne and Carrickfergus Railway made an excursion on the 11th inst. in the *Giraffe* steamer, which the owners, the Messrs. Burns, of Glasgow, placed at their disposal free of expense, for the purpose of testing the merits of the two modes of crossing the channel, viz., *viâ* Donaghadee to Portpatrick and Larne Lough to Lough Ryan. In the published account of the trip it is stated that the time occupied by the *Giraffe* in crossing from Donaghadee to Portpatrick was 1 hour 34 minutes; and from Lough Ryan to Larne Lough, 2 hours 1 minute, to which some minutes should be added, making the difference of time in favour of the route by Donaghadee and Portpatrick about half-an-hour; but, to counterbalance this, the harbours at these places offer neither the same security, depth of water, nor facility of access and departure at all times, which are to be found at the natural harbours of Larne and Lough Ryan (though this is denied by the Government engineer), notwithstanding the immense sums which have been spent by Government in the attempt to form artificial harbours at Donaghadee and Portpatrick. It is proposed to connect Antrim and the junction of the Banbridge and Ulster railways, by a railway through Crumlin along the banks of Lough Neagh, shortening the distance from Dublin to Antrim eighteen miles, and affording railway communication to a fertile and densely populated district. Mr. Bower is the Engineer.

TENDERS

For first portion of works, Cambridge Townhall. Messrs. Peck & Stephens, Maidstone, architects. Quantities supplied:—

Myers	£7,750 0 0
Bullock	7,345 0 0
Thorday & Clayton	6,970 0 0
Young	6,300 0 0
Bell & Sons	6,157 0 0
Ayres	5,999 0 0

Architects' Estimate, £6,000

For farm buildings at Woldingham, in Surrey, for Mr. Joseph Kitchen. Mr. W. Hey, architect:—

Ward	£1,695

For alterations at the King John's Head Tavern, Albemarle-street. Mr. W. E. Williams, architect:—

Grose & Co.	£379 0 0
Green	377 0 0
Scott	305 10 0
Tolley	290 0 0

For alterations to Coach and Horses, Blackheath-hill, Mr. William Nunn, architect:—

Wills	£222 0 0
Miller	220 0 0
Day (accepted)	215 0 0

For building warehouse at Birmingham for Messrs. Copestake, Moore, Crampton, & Co. Mr. J. G. Bland, architect:—

Harris	£2,368 10 0
Hardwick & Son	2,275 0 0
Jones	2,200 0 0
Matthews	2,188 0 0
Buggs	2,180 0 0
Barnsley & Sons	2,150 0 0
Robinson	2,113 0 0
Anley	1,994 0 0

For re-building the Two Brewers public-house, Brick-lane, Spitalfields. Mr. William Reddall, architect:—

Conder	£999 0 0
Blackburn	967 0 0
Ashby & Sons	945 0 0
Scott	930 0 0
Case	907 0 0

For the Kingsfield Congregational Church, Southampton. Quantities supplied by Messrs. Hinves & Bedborough, architects:—

Richardson	£2,360 0 0
Gamlen	2,122 10 0
Nickols	2,100 0 0
Stevens	2,000 0 0
Bull	1,997 0 0
Bailey	1,850 0 0
Hardiman	1,789 0 0
Watts (accepted)	1,740 0 0

For the foundation of Tower or Observatory, Vernon Park, Stockport. Mr. J. Stephens, architect, Manchester. Quantities supplied by the architect:—

Gothered & Ormerod	£437 5 0
Forrester	370 0 0
Thackrah & Peirce (accepted)	349 0 0

For the villa residences at Forest-gate, West Ham, Essex. Messrs. Francis, architects:—

Myers	£2,677 0 0
Calls & Co.	2,475 0 0
Mansfield	2,397 0 0
Holland	2,365 0 0
Keys & Head	2,119 0 0
Rivett (accepted)	2,042 0 0

For kirbing and paving Morgan-road, Charlton, for Plumstead Board of Works:—

Buvers	£209 0 0
Hobbs	206 10 0
Gleavers	194 10 0
Barnes (accepted)	176 18 0